Railway Age

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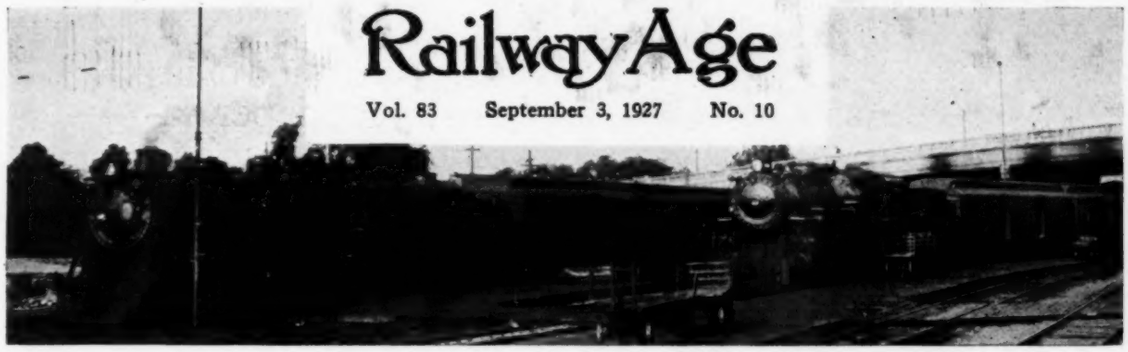

An A. C. L. Train (Left) and a F. E. C. Train at Jacksonville, Fla.

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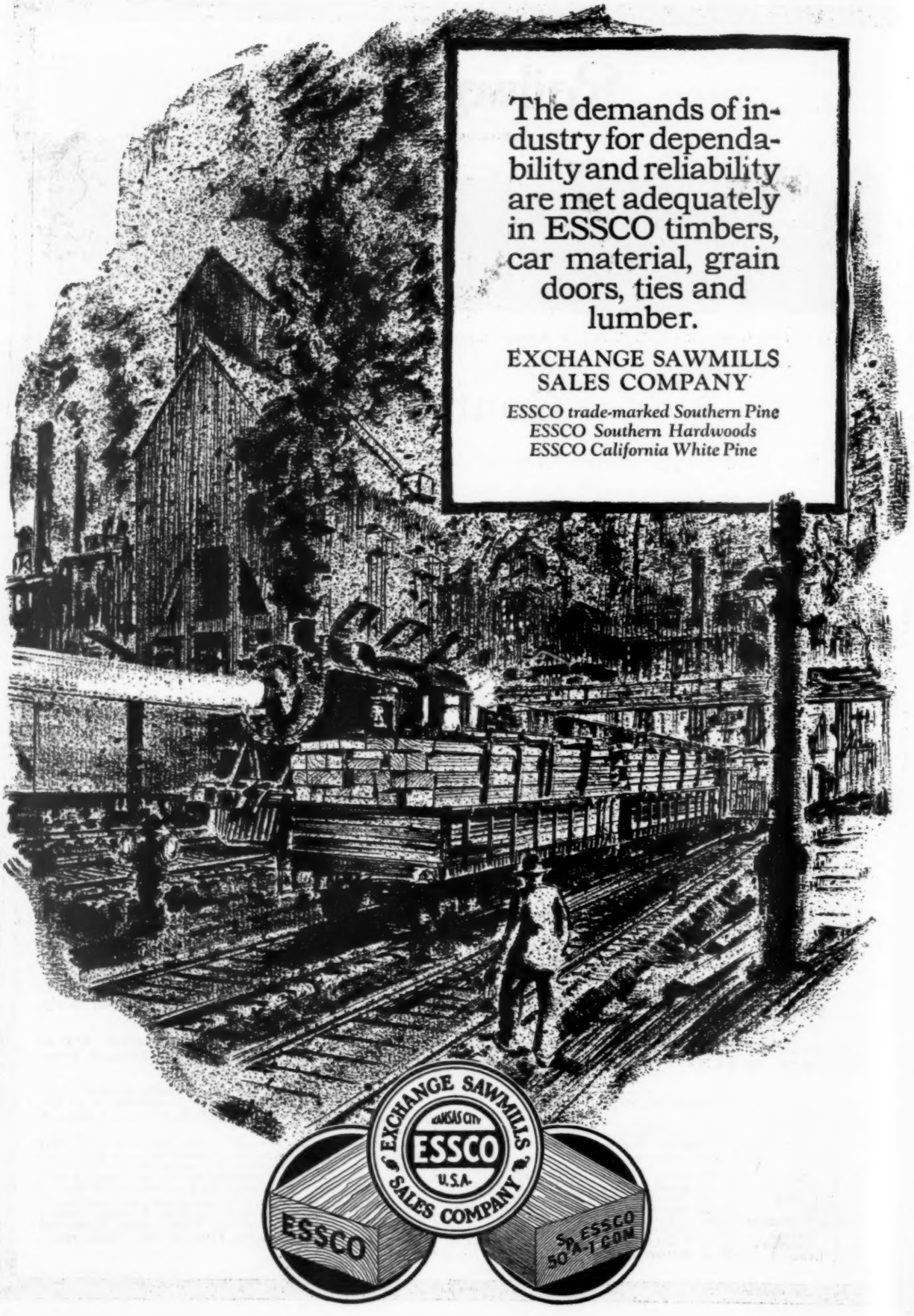
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Railway Age

Vol. 83, No. 10 September 3, 1927

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Co-operation in Reducing Damage

THE officers in charge of the joint meeting of the Southeastern, Eastern and Virginia Claim Conferences, to be held next month, have written the operating executives of the member lines requesting that at least one superintendent from each line be present. They have also included in the call an editorial entitled "The Superintendent's Freight Claim Responsibility," reprinted from the *Railway Age* of July 23, in which closer co-operation between the superintendents and freight claim prevention officers was urged. It is to be hoped that the operating executives addressed will find it possible to arrange for their superintendents to attend and, further, that the policy of having operating officers attend claim conferences will be adopted more generally. Freight claim prevention officers have been doing their work efficiently and well, but they are not in direct charge of the men who damage freight. As a result, they do not have the disciplinary powers or the close contact that the superintendent has with the men, nor is it necessary that they should have, providing the superintendent will do his part. No superintendent would deliberately encourage the damaging of freight, of course, yet that is in effect what he is doing when he fails to keep abreast of the activities of the freight claim prevention officers. There is no better way of acquainting a superintendent with these activities than by letting him attend the more important freight claim meetings.

Keeping Newspaper Stories About Wrecks Accurate

TRAIN wrecks in which passengers are killed or injured cannot be entirely avoided, but the publication by newspapers of grossly exaggerated and highly inaccurate stories of such occurrences can be. The damaging effect on the railways' interests of such exaggerated stories makes any effort necessary to avoid them worth while. Such stories are usually published about accidents on those railways which customarily throw a mantle of secrecy about them. The inevitable result of such attempts at withholding the facts is that the newspapers get the "story" anyway and that it is based upon exaggerated rumors. Most railways have found it to their interest to build up the confidence of their local newspapers in the accuracy of their statements about accidents. They have taught these newspapers that the place to come for the correct story of a wreck is the office of the railway, and they have been careful not to betray the confidence of the newspapers in them. One middle western railway has made it generally known that the chief dispatcher is the man to come to for information about such occurrences on his division. Full reports of wrecks and of the casualties involved are sent to him at the earliest possible moment and he broadcasts this information to the newspapers in his city and out on the line. Since this policy was adopted, exaggerated and inaccurate newspaper stories about accidents have been few and far between. Publicity about wrecks cannot be avoided, but it can and should be kept at the minimum of bad effect.

The B. & O.'s Series of Centennial Posters

ON several occasions we have called attention to, and reproduced, striking posters issued by the British railways. Perhaps no other industry anywhere has carried the advertising poster to such a degree of artistic finish combined with advertising appeal. The American railways, while at times issuing some extremely attractive posters, have not, generally speaking, in the past concentrated upon this medium to the same extent as the British railways. Now, however, the Baltimore & Ohio, to spread the word about its coming "Fair of the Iron Horse," has released a series of four richly colored posters, which we believe will compare on equal terms with any yet prepared anywhere. Two of the series are reproduced, in black and white, elsewhere in this issue. A series of posters of different design, but with the same advertising appeal, it would seem, has a cumulative effect on the beholder much stronger than that of one poster only which is viewed many times. The situation is much the same as that of a store which changes its window display frequently, as contrasted with the one which maintains the same arrangement of goods, however attractive, over long periods of time. The B. & O. posters, therefore, are pleasing not only in their excellence of execution, but also because a variety is provided.

Revising the Time Table

WHEN a new time table of trains is about to be made effective, the work of revising the locomotive assignments sometimes is made very complicated. There have been occasions when even one change in the time table has resulted in the revision of several locomotive assignments, and failure to consider this phase of the problem has resulted in light locomotive mileage. Close co-operation between all departments concerned is essential or considerable waste is bound to occur. Reasonable margins between trips and correct spacing between trains must be insured in order to perform the necessary maintenance and preparation work at engine terminals, without unnecessarily long layovers. The provision of adequate terminal facilities and the proper quantity and quality of fuel is a very important consideration in this respect. High speeds are much to be desired, but it

is not a wise policy to try the impossible. A schedule calling for an excessive rate of speed not only results in waste of fuel, but tends to make a poor record of trains arriving on time. It is generally conceded that the average passenger prefers a few minutes longer on the journey and a punctual arrival than being late at the destination. It is cheaper to arrange reasonable margins at intermediate stations for loading express, baggage, etc., and also to make proper allowance for speed restrictions in force than unduly to punish the boiler and machinery of a locomotive. Providing power for scheduled trains is one of the important jobs of the mechanical department, and when time tables are being revised, the needs of the mechanical department should be considered.

A Tribute to the Fireman

RAILROAD men of the highest rank have contributed substantially to the proceedings of the International Railway Fuel Assoication. Much information of the greatest practical value has also been supplied by the large number of enginemen and firemen who comprise an important part of the membership. In fact, the comments of these latter men, who are both literally and figuratively on the firing line in railroad service, have frequently been notable for the accurate, keenly analytical and semi-humorous way in which they analyze the problems daily confronting them. Witness the following excerpts from a talk by Cyrus E. Gallatin, a locomotive engineman of the Baltimore & Ohio, at the last meeting of the Fuel Association. "The amount of steam required to perform a certain amount of work, which is determined accurately by the volume of water used, determines the efficiency of the engine and the engineer. The amount of coal required to transform a certain amount of water into steam or energy is determined by the skill of the fireman, the quality of coal consumed, the design of firebox and bolier, the proper draft and the freedom of the heating parts of the boiler from scale. * * * * While a real good fireman at times resembles a coal mine, he is not; he is a gold mine, and the company that lets good gold mine stock slip through its fingers is not wise. * * * * It is an extravagance to make an enyineer out of a real good fireman while there are so many poor ones who might answer the same purpose." This engineman is more valuable to his company and consequently to himself because, while not underestimating the importance of his own job, he appreciates fully the vital part played by the fireman in securing fuel economy and generally efficient locomotive performance.

The Canadian Rate Decision

THE Canadian Board of Railway Commissioners has issued an order which virtually halves the rate on eastbound all-rail grain from the head of the lakes to Quebec via the National Transcontinental. Other rulings in the order include a reduction of Canadian Pacific branch line rates in the West to the main line basis, and refused to rescind an order issued some time ago which removed the mountain differential on west-bound grain. Thus rate fixation which, in the words of the Montreal Gazette, is "political rather than scientific" spreads. Railway tariffs in Canada are becoming more and more related to the national economic and development policy, and are taking on more of a resemblance to customs tariffs, losing their character of business-like prices made to cover the cost of service plus a reasonable profit to the producer. This latest order may be considered as the logical outcome of the restoration of the Crow's Nest Pass rates several years ago. Applied at that time only to Canadian Pacific lines in the Prairie provinces which were in existence in 1897, they have now in the name of "equalization" been spread out over the West generally. The effect on the Canadian railways, which have to meet considerable increases in wages, cannot but be serious. The last rate revision in Canada, the 20 per cent reduction in the Maritimes a few months ago, was frankly recognized as based on national policy, rather than cost of service and fairness to the railways and users as well; and arrangements were made to compensate the railways for their losses. It is difficult to see wherein the factors entering into the present decision are so greatly different that the changes can be made with no thought to similar protection of the railways' revenues.

The Railways and the People

IT is believed by many persons, including some in high government positions, that the people of rural communities still feel hostile toward the railways and want drastic regulation of railway rates and earnings. One naturally would think that if such sentiment exists anywhere it would be found in Iowa, where Senator Brookhart and other politicians have for years misrepresented and denounced the railways. An event occurred in Iowa last week which indicates that even in rural communities in that state the people now have a friendly feeling toward the railways and a desire to see them reasonably regulated. Forty years ago the Chicago Great Western was built into Blockton, a small town in Iowa that is completely surrounded by farms. The local people and the officials of the railway joined on August 27 in celebrating this fortieth anniversary. The railway exhibited some of the equipment used by it then and now. A large party of its officials, headed by President Howard, participated in the celebration. A crowd from the town and the surrounding country of probably 4,000 people assembled. The mayor of Blockton made an address welcoming the railway visitors, in which he emphasized what railroad transportation has meant to that part of Iowa, highly praised the service now being rendered and deprecated unjust criticism of the railways. President Howard and others related railway history and discussed the present railroad situation and problem, and for more than two hours the large crowd, most of the members of which were standing, listened in a most attentive and friendly way to the addresses and applauded what was said regarding the interdependence of the railroad, the agricultural and other industries, and the necessity for sane co-operation between all concerned in solving the railroad problem, the farm problem and other public problems. The spirit manifested recalled that shown in the early days of railroad construction. A good many years ago a witty politician said that apparently nobody was for a certain candidate for president but the people. In the west there are still politicians who use attacks upon the railways as their principal stock in trade, but evidence is accumulating that the good transportation service being rendered, the increasing contact between railway officers and the public, and the widespread dissemination of information re-

garding railroad operation and regulation are creating even in rural communities a sentiment in favor of fair and constructive regulation. The candidate for president who was favored by "nobody but the people" was elected. Likewise, in the long run, if the people favor sane and constructive regulation the railways will get it, although the politicians may seem slow in finding out that this is what the people really want.

Automatic Highway Crossing Signals as Money Makers

THE expense which is justified to provide means of preventing loss of life is indeterminate; however, this fact should not deter a railroad from endeavoring to save money in highway crossing protection, if the means used to this end offer equal or better safeguards to highway travel. In earlier days the assignment of watchmen at crossings was deemed the cheapest and best means of protecting the users of the highway. Subsequently the installation of manually operated gates with a gateman for each crossing was adopted as an improvement. With the advent of automatic crossing signals and their demonstrated superiority over manual protection at many points the railroads have undertaken to replace watchmen with automtaic protection as a means of safeguarding a greater number of crossings for the full 24 hours of a day at no increase in operating expense. At other locations the control of two or more sets of gates has been consolidated to reduce the number of men required.

The promotion of this plan has been beset with difficulties. The establishment of an agreement to this end with the legal and operating officers of the railroad by the signal department has often called for the best efforts of a real diplomat. Of even greater delicacy is obtaining the consent of the local authorities for such changes in protection. Such proceedings are often long drawn out affairs and sometimes accomplish nothing, especially if the railroad representative does not pursue a well considered course.

One large road has vested full authority in such matters in its signal engineer, giving him the power to negotiate with local representatives, to say definitely what the railroad will do in the way of protection and, last, but not least, to assist in carrying the matter to a conclusion by assisting in the preparation of ordinances designed to require reasonable co-operation by the users of the highway. This road is making excellent progress and is saving money on highway crossing protection to the extent of several times the signal engineer's salary every year.

On the other hand, another road with equal mileage in the same territory is conceded by some of its own officers to have been negligent in making the best of its opportunities to reduce the cost of highway crossing protection. The principal reason ascribed for this is the failure to clothe any one officer with definite authority to act for the road. One man in the operating department and another from the engineering department have each taken an intermittent interest in the various problems coming up with respect to crossing protection. However, the signal department, which should be the best prepared to know what can be accomplished by automatic equipment, has failed to take a strong enough hand in the matter to establish a systematic program of investigation.

Highway crossing protection is a problem requiring the co-ordinated efforts of officers of various departments if best results are to be secured, but the direction of such efforts should be centered in some one officer with full power to deal with local authorities.

Change the Stimulant

IN the attempt to stimulate intelligent effort on the part of individual workers, as well as to encourage more enthusiastic teamwork, railroad managements as well as industrial organizations, large and small, have found it profitable to devise various means of stimulating the imagination and of forcefully driving home pertinent facts in a simple and direct way. Every once in a while someone engaged in promoting a movement in the interests of such things as safety first, traffic solicitation, fuel economy, or other efforts toward greater efficiency or more economical operation has hit upon a device or method which gives excellent returns. It quickly reaches the stage of an approved or standard practice and may even come into general use on many railroads. The novelty will soon wear off, but in many instances the New Method or practice is continued in use indefinitely with little or no change or modification. Naturally it becomes more and more unproductive; indeed, it may in time become almost entirely useless. It is important, therefore, that those in charge should continually check up and guard against maintaining these practices after the novelty has worn off to such a degree as not sufficiently to warrant their existence in their original form.

As a possible example of a practice which may need attention in this respect, ought not more attention be given to the printed card forms which are enclosed in most railroad employees' magazines in the effort to encourage the solicitation by every employee of passenger and freight traffic? It may cost something in both money and effort frequently and regularly to change the arrangement and appearance of these cards, but is it not true that the average employee after seeing two or three of them in looking over the magazines—the very contents of which compete with the card for attention—fails to be interested or impressed by them in succeeding issues? Are there not many ways in which these cards can be changed and improved from time to time to insure a fresh and continued interest in them? How about many practices in other lines of endeavor which were hailed with delight a few years ago and have given an excellent account of themselves, but are still continued in use in spite of the fact that they may have lost much if not all of their effectiveness?

I. C. C. Commendation for the Denver & Rio Grande Western

IN two reports issued by the Interstate Commerce Commission the Denver & Rio Grande Western was criticised because of mishandling of train orders resulting in a serious accident on August 20, 1925, while a third report issued on July 1 and published in the *Railway Age* of July 23 stated that investigators for the commission had found conditions on the railway greatly improved and commended the management for what it had accomplished. The Denver & Rio Grande Western affords a good example of improvements in physical conditions and operating efficiency that have been effected on several railways within recent years under

great difficulties. The property was allowed in past years seriously to deteriorate physically, while earnings made by it were used to finance the control and construction of other properties. The deterioration of its physical condition and frequent changes of management, including the adoption of government operation, greatly impaired the morale of its organization and employees. Stability of financial control and management having been established within recent years, practically all net earnings in excess of those required for fixed charges have been used to rehabilitate the property and great efforts have been made to restore the morale. The investigation referred to in the third report took place between April 15 and May 15. It had been the intention of the commission to give the railway more time to effect an improvement, but the management requested that the third investigation be not postponed, and the latest report of the commission's investigators illustrates the rapidity with which operating conditions and results can be improved by a management that feels secure in its position, that is in close touch with operating conditions and problems, and that makes the utmost efforts to solve these problems. The Denver & Rio Grande Western was managed too long from Wall Street and for a period from Washington. It is now being managed from Main Street—in other words, from Denver. The proper handling of train orders is a delicate business at best. It has been brought to its present high degree of efficiency and safety on our railways only by years of effort, and depends so much on the human equation that an improvement in it is a sure indication of improved morale.

Freight Rates and Prices for Thirty-Seven Years

THE original Act to Regulate Commerce went into effect in 1887. Therefore, the nation has now had just forty years of federal railroad regulation. During most of this time there has been agitation for general reductions of freight rates, or for reductions in rates in particular territories or upon specific commodities, upon the ground that they have been needed to promote the prosperity of the country or the prosperity of certain territories or industries. During about one-half of this time, or since 1906, the Interstate Commerce Commission has possessed and exercised the power actually to fix rates. Fourteen years ago there was passed the La Follette law providing for a valuation by the commission of all the railways as a basis on which to fix rates as low as could be done without unconstitutional confiscation.

For two years the commission has had, under the Hoch-Smith resolution passed by Congress, a mandate which it is now carrying out to consider the economic conditions of different industries in readjusting rates with a view to giving relief to those that are depressed, especially agriculture, and transferring some of their freight rate burdens to other industries.

All this agitation and regulation have been predicated upon the assumption that freight rates have an important effect upon the development of industry and the movement of commerce; that because of the nature of the railroad business they tend to increase as much as or more than the prices of commodities; and that, therefore, while the government should not regulate prices, it should control freight rates to prevent them from being made discriminatory as well as excessive and burdensome.

Records of Prices and Rates

Statistics compiled and published by government authorities make possible a comparison of the changes that have occurred in commodity prices and freight rates almost throughout the forty years since the Act to Regulate Commerce was passed. It happens that the Bureau of Labor Statistics publishes tables of index numbers showing the changes that have occurred in the average wholesale prices of all the large groups of commodities since 1890, and, of course, the annual statistics of the Interstate Commerce Commission give the average receipts per ton-mile of the railways throughout this period. A comparison of these figures is most illuminating. The most outstanding and striking facts disclosed are that the average revenue per ton per mile of the railways of the United States is now less than 14 per cent higher than in 1890, the increase being from 9.41 mills to 1.069 cents, while the wholesale prices of all commodities average 79 per cent higher and the wholesale prices of farm products 96 per cent higher. We publish herewith a graph, the lines of which show the movement of average revenue per ton per mile, average commodity prices and average farm prices from 1890 to the middle of the present year.

Prices Advance—Freight Rates Decline

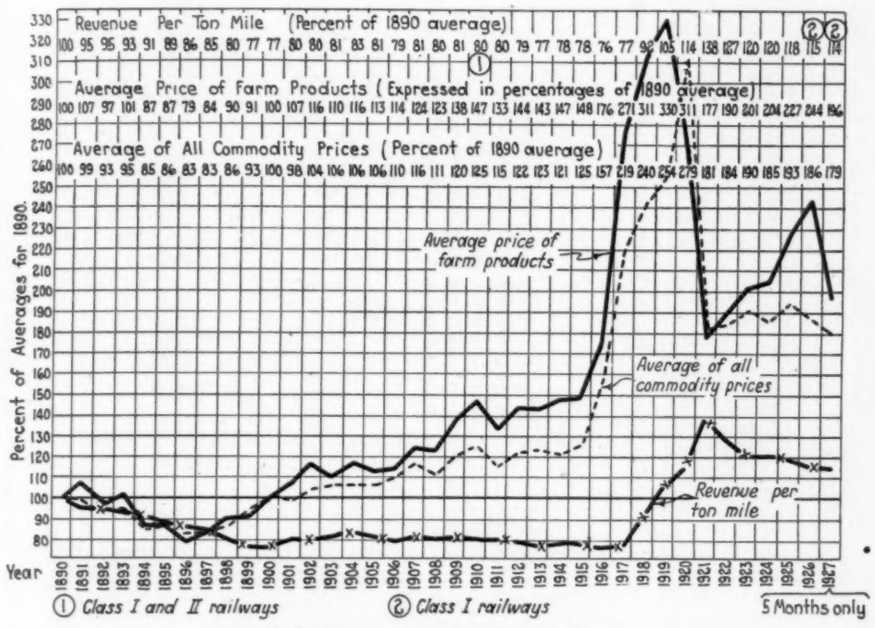
A glance at the graph shows that during most of the years from 1890 to 1897 the trends of both freight rates and prices were downward, this being the period in which occurred the great panic of 1893. In 1897 the average freight rate was 15 per cent lower than in 1890, the average price of farm products 16 per cent lower and the average price of all commodities 17 per cent lower. Ten years later—in 1907—the average freight rate was 19 per cent lower than in 1890, but the average wholesale price of all commodities averaged 16 per cent higher than in 1890 and the average price of farm products 24 per cent higher.

During the next ten years the general trend of commodity prices, including those of farm products, was still upward, while the trend of freight rates, as indicated by the average revenue per ton per mile, continued downward. This was the first decade of effective federal regulation of rates, the Hepburn Act having gone into effect in 1906 and the Mann-Elkins Act in 1910. The Mann-Elkins Act, giving the Interstate Commerce Commission power to suspend advances in rates, was passed because the railways sought to make general advances which in 1911 the commission refused to permit. Stimulated by the war in Europe and the entrance of this country into it, prices shot upward toward the end of the decade until in 1917 the wholesale prices of all commodities averaged 119 per cent higher than in 1890 and the wholesale prices of farm products 171 per cent higher; but, owing to the kind of regulation to which the railways were subjected, their average freight rate in 1917 was only as high as in 1900 and 23 per cent lower than in 1890.

The Last Ten Years

In the ten years since 1917 there have occurred great changes in both freight rates and prices. When the largest advance in freight rates in history was made in 1920, the wholesale prices of all commodities averaged 179 per cent higher than in 1890, and those of farm

products 211 per cent higher. This advance in rates having been made late in 1920, it was not in effect throughout a year until in 1921. Meantime prices had declined, and there was a great outcry about high freight rates. The figures in the graph published herewith show, however, that even in 1921 the average freight rate was only 38 per cent higher than in 1890, while the wholesale prices of all commodities averaged 81 per cent higher and the prices of farm products 77 per cent higher. As a result of subsequent changes in rates and prices, the average freight rate during the first six months of 1927 was, as already stated, less than 14 per cent higher than in 1890, while the wholesale prices of all commodities averaged 79 per cent higher and the prices of farm products 96 per cent higher.


Revenue Per Ton Mile (Percent of 1890 average)
Average Price of Farm Products (Expressed in percentages of 1890 average)
Average of All Commodity Prices (Percent of 1890 average)
Average price of farm products
Average of all commodity prices
Revenue per ton mile
Percent of Averages for 1890
Year
① Class I and II railways
② Class I railways
5 Months only

Freight Rates and Prices for 37 Years

Railways Saved by Increasing Efficiency

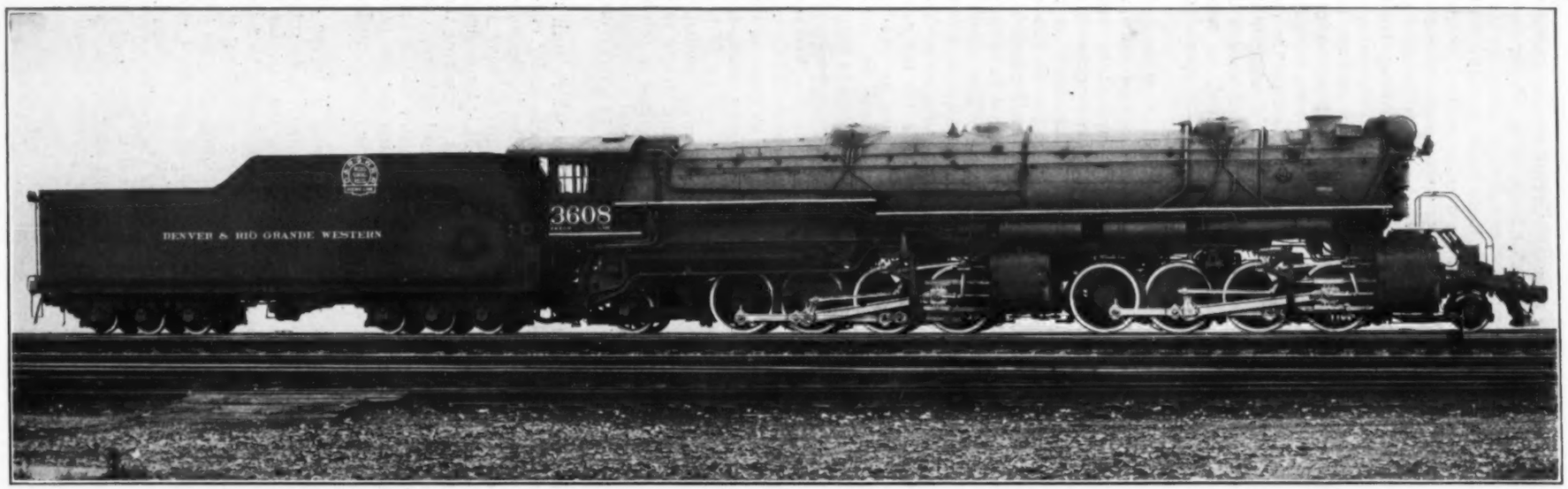
There is complaint from some industries, especially the agricultural industry, that they are unable to prosper at the present time on account of low prices of their products. Why, then, is it possible for the railway industry to live, and for some railways to make earnings that it is claimed justify reductions of their rates to help industries that are depressed, although the railways are getting an average freight rate only 14 per cent higher than 37 years ago? The railways have had to advance the wages of their employees as much or more in proportion as other industries, and in addition must pay other industries prices that have increased much more in proportion than freight rates. The explanation must be that over the period of almost forty years reviewed capital has been invested more skilfully and operation has been conducted more efficiently in the railway than in most other industries. The investment in the railways is now about 180 per cent greater than in 1890 and their net capitalization about 140 per cent greater. Their freight business is about 500 per cent greater, but they are handling it with only about 125 per cent more locomotives and 165 per cent more freight cars. Of course, each freight car has a much greater carrying capacity and each locomotive has much more power, and the average load of freight carried per train has increased from 175 tons to 770 tons. The result of this increase in the average trainload is that to handle a 500 per cent increase in freight traffic the railways move freight trains only about 50 per cent more miles annually than in 1890. In the increase in the average load of freight per train is to be found the principal reason for the enormous economies that have been achieved in railway operation. To effect this increase in the average train load it has been necessary to invest billions of dollars of capital for the repeated reconstruction of tracks, bridges, terminals, etc., and for the replacement of old equipment with more efficient cars and locomotives, as well as constantly to improve operating methods.

The history of prices, of freight rates and of railway development during the last forty years constitutes an unanswerable argument for a policy of regulation in future that will encourage ample investment of capital in railway improvements. The capital invested in the past to effect economies in operation has made it possible for the railways to live and to render good service now in spite of the small increase in freight rates that has occurred. If the increase in the average freight rate since 1890 had been relatively as great as the increase in the average price of all commodities, the nation's bill for freight transportation would be 57 per cent greater, or about $2,740,000,000 more annually, than it is, and if the increase in the average freight rate had been as great in proportion as the increase in prices of farm products the nation's bill for freight transportation would be 72 per cent larger, or almost $3,500,000,000 more annually, than it is.

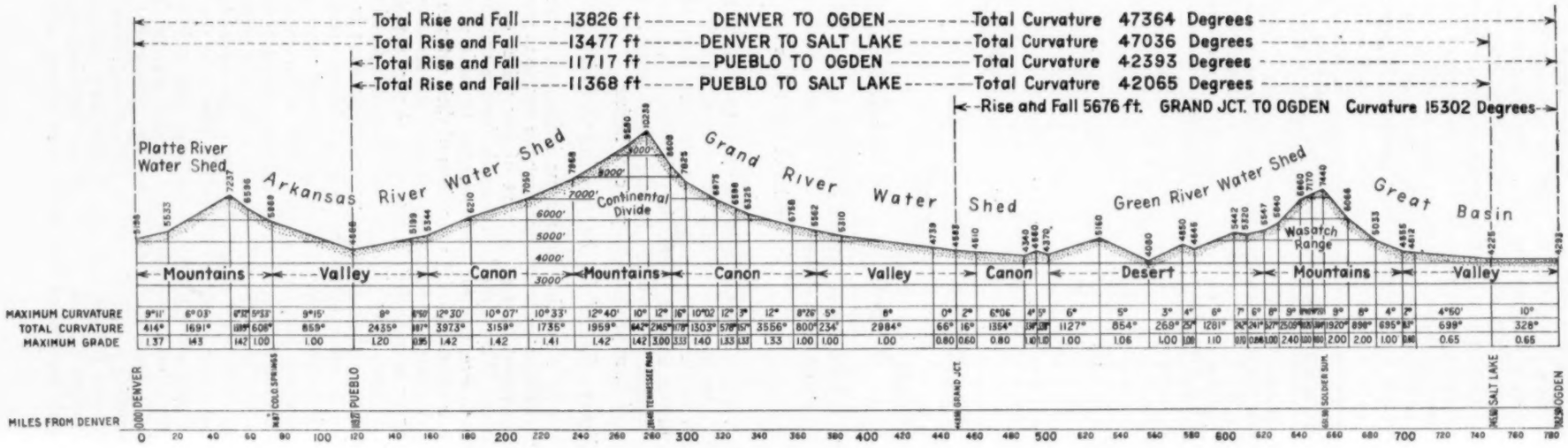
It is astounding that an industry for which such a showing can be made should have its rates under constant attack upon the ground that they are burdensome to one industry after another whose prices have increased much more than railway rates. It is astounding, when such vast savings to the public as a result of the wise investment of capital in the railroad industry can be shown, that it should be the one industry that is subjected to increasingly rigorous regulation for the purpose of restricting the net returns earned upon capital invested in it.

The surest way to assure a continuance in future of such reductions of freight rates in proportion to commodity prices as have occurred during the last forty years would be to give the railways opportunity to raise and invest all the capital they can use in making improvements adapted to effecting economies through the saving of labor, fuel and materials in operation and maintenance.

Unfortunately, many who regulate the railways think the only way they can save the public money is by regulating rates regardless of the ultimate effects upon the improvements essential to the greatest operating economy.



One of the 2-8-8-2 Type Locomotives Recently Delivered to the Denver & Rio Grande Western by the American Locomotive Company



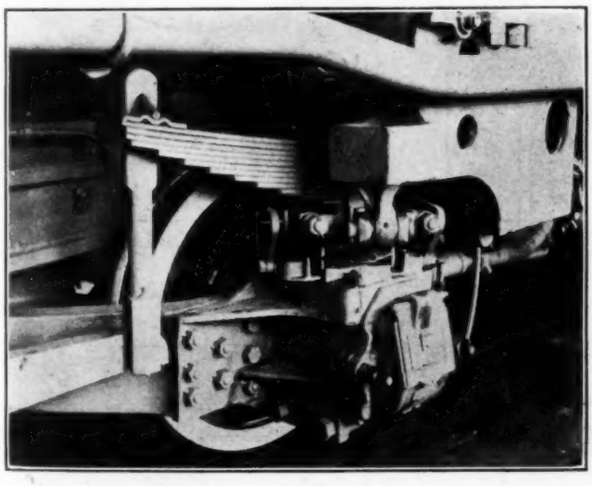
Condensed Profile of the D. & R. G. W. from Denver, Col., to Ogden, Utah

Ten 2-8-8-2 Type Locomotives for the D. & R. G. W.

Purchased primarily to reduce helper and light engine mileage—Maximum tractive force of 131,800 *lb. at* 70 *per cent cut-off*

THE Denver & Rio Grande Western recently received 10 four-cylinder simple articulated 2-8-8-2 type locomotives from the American Locomotive Company which represent the most recent effort to produce in a single traction unit the maximum power obtainable within the restrictions of rails, curves, grades and clearances. Permissible rail loads were relatively high and clearances relatively large so that it was possible for the designers to take complete advantage of these two important factors. As a result, a locomotive of abnormally large size was made possible for handling the desired tonnage over the ruling grade at the desired speed.

These locomotives develop a maximum tractive force of 131,800 lb. produced at 70 per cent cut-off, which is believed to be the largest power output of any coal-burning locomotive ever built. The cylinders are 26 in. in diameter by 32 in. stroke, and the boilers operate at a working pressure of 240 lb. per sq. in. The driving wheels are 63 in. in diameter. The eight pairs of coupled drivers carry a load of 559,500 lb. which gives a factor of adhesion of 4.2. These locomotives were designed to negotiate 22-deg. curves. The dimensions, weights and proportions of these locomotives are shown in the table.



The Trailer Truck

This type of locomotive was selected because it was considered impossible to build a non-articulated locomotive that would handle the trains that the D. & R. G. W. desired to operate. Referring to the condensed profile, the locomotives are scheduled to handle 3,000 tons east from Grand Junction, Col., and as this constitutes a light load as far as Glenwood Springs, 89.47 miles, it is intended to run the engines at a speed of about 25 m.p.h. to that point. The grade changes at Glenwood Springs and the speed will be reduced to about 15 m.p.h. as far as Minturn, which is 58.13 miles from Glenwood Springs. From Minturn to the Continental Divide at Tennessee Pass, 20.51 miles, the locomotives will be operated in a three-engine train, being assisted by two smaller mallet type locomotives. The ruling grade between these two points is 3.33 per cent, with a maximum curvature of 16 deg. The locomotives will be run through alone with the train to Salida or Pueblo, 66.34 miles and 162.18 miles from Tennessee

Table of Dimensions, Weights and Proportions of the 2-8-8-2 Type D. & R. G. W. Locomotives

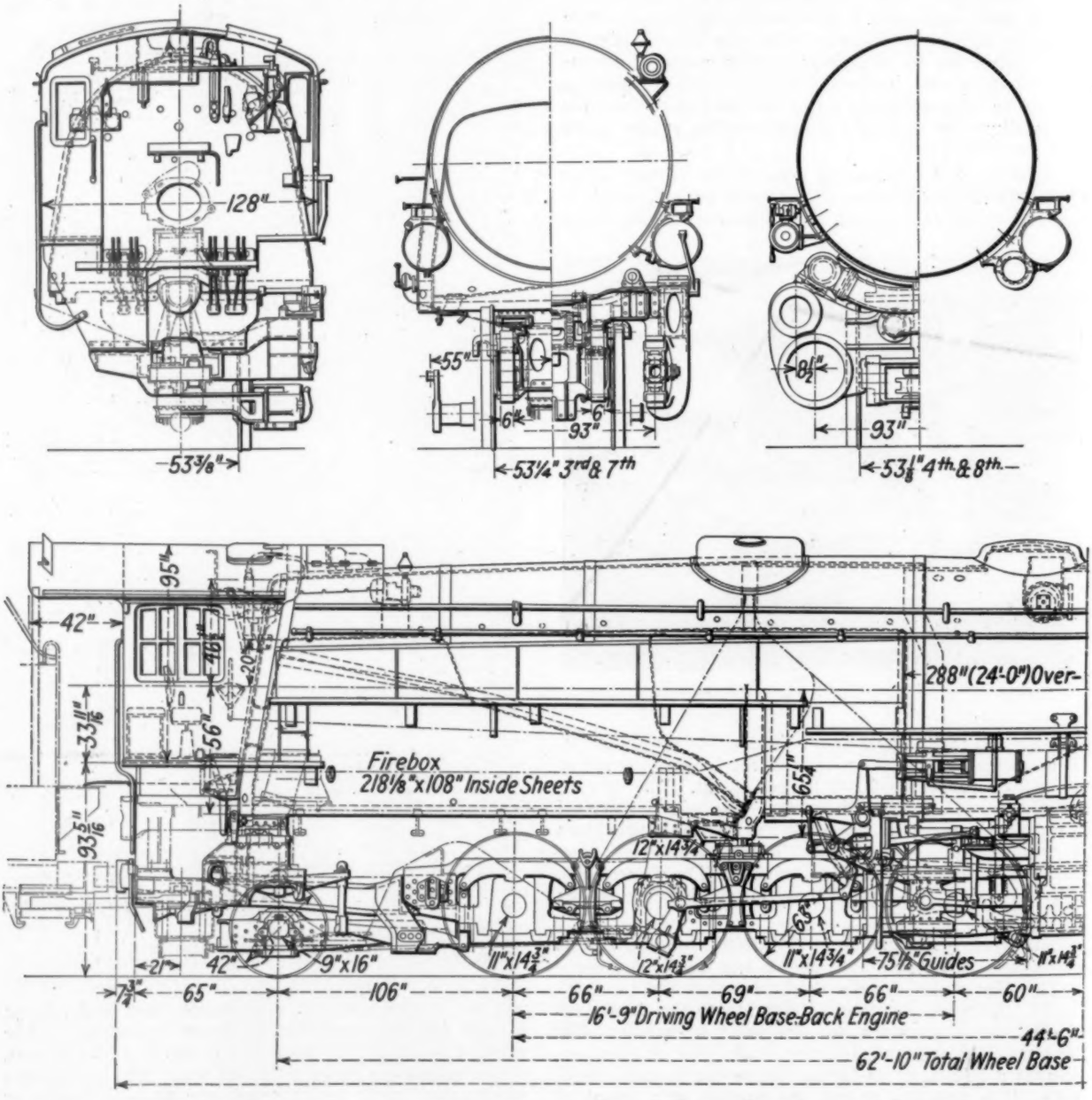
Railroad	D. & R. G. W.
Type of locomotive	2-8-8-2
Service	Freight
Cylinders, diameter and stroke	4—26 in. by 32 in.
Valve gear, type	Walschaert
Valves, piston type, size	14 in.
Maximum travel	7¼ in.
Outside lap	1⅞ in.
Exhaust clearance	None
Lead in full gear	3/32 in.
Cut-off in full gear, per cent	70
Weights in working order:	
On drivers	559,500 lb.
On front truck	40,500 lb.
On trailing truck	49,000 lb.
Total engine	649,000 lb.
Tender	343,500 lb.
Wheel bases:	
Driving	33 ft. 6 in.
Rigid	16 ft. 9 in.
Total engine	62 ft. 10 in.
Total engine and tender	108 ft.
Wheels, diameter outside tires:	
Driving	63 in.
Front truck	33 in.
Trailing truck	42 in.
Journals, diameter and length:	
Driving, main	12 in. by 14¾ in.
Driving, others	11 in. by 14¾ in.
Front truck	6½ in. by 12 in.
Trailing truck	9 in. by 16 in.
Boiler:	
Type	Straight top
Steam pressure	240 lb. per sq. in.
Fuel, kind	Soft coal
Diameter, first ring, inside	100⅛ in.
Firebox, length and width	218 in. by 108 in.
Combustion chamber length	72½ in.
Tubes, number and diameter	284—2¼ in.
Flues, number and diameter	74—5½ in.
Length over tube sheets	24 ft.
Grate area	136.5 sq. ft.
Heating surfaces:	
Firebox and combustion chamber	560 sq. ft.
Arch tubes	45 sq. ft.
Syphons	110 sq. ft.
Tubes and flues	6,550 sq. ft.
Total evaporative	7,265 sq. ft.
Superheating	2,295 sq. ft.
Comb. evap. and superheating	9,560 sq. ft.
Tender:	
Water capacity	18,000 gal.
Fuel capacity	30 tons
Wheels, diameter outside tires	33 in.
Journals, diameter and length	6½ in. by 12 in.
General data, estimated:	
Rated tractive force at 70 per cent cut-off	131,800 lb.
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent	86.25
Weight on drivers ÷ tractive force	4.27
Total weight engine ÷ comb. heat. surface	67.8
Boiler proportions:	
Tractive force ÷ comb. heat. surface	13.78
Tractive force × dia. drivers ÷ comb. heat. surface	868
Firebox heat. surface ÷ grate area	4.1
Firebox heat. surface, per cent of evap. heat. surface	7.7
Superheat. surface, per cent of evap. heat. surface	31.6

Pass, respectively. Westbound, out of Salida, the locomotives will be used on single-engine trains of 3,000 tons at a speed of about 16 to 17 m.p.h.

Boiler Has Unusually Large Firebox

To supply the steam to the four 26-in. by 32-in. cylinders, a straight top boiler having an inside diameter at the front of 100-15/16 in. and an outside diameter of 110 in. at the throat is provided. The barrel contains 284, 2¼-in. tubes and 74, 5½-in. superheater flues, 24 ft. long. The firebox is believed to be the largest, both in grate area and heating surface, of any locomotive firebox ever built. It has a length of 218 in. and a width of 108 in., together with a combustion chamber 72½ in. long, which gives a total evaporative heating surface of 560 sq. ft. The length of the grate is 182 in. giving a grate area of 136.5 sq. ft., with a Gaines arch located at the front end of the firebox. Two Nicholson syphons are applied in each firebox, together with American arch brick, and a Type A superheater of 74 units is employed. Bituminous run of mine coal is fed to the grates by a Standard Type B stoker. The total evaporating surface of 7,265 sq. ft. is made up of 4,000 sq. ft. in the tubes, 2,550 sq. ft. in the flues, 560 sq. ft. in the firebox, 45 sq. ft. in the arch tubes, and 110 sq. ft. in the syphons. The superheating surface is 2,295 sq. ft.

A dry pipe of steel tubing 12-in. in diameter, conveys the steam from the dome to the superheater header containing the built-in American throttle which governs its supply to the cylinders. The steam pipes carrying 240 lb. pressure through swivel joints presented a new problem in ball joint packing design, but by the use of a special Johns-Manville packing and adjustable packing glands, perfectly steam-tight joints were obtained. The entire steam pipe arrangement always pre-



Elevation and Cross Sections of the 2-8-8-2 Type

sents considerable of a problem on an articulated locomotive, but it is believed this locomotive illustrates the simplest arrangement using the least amount of pipe that has yet been produced.

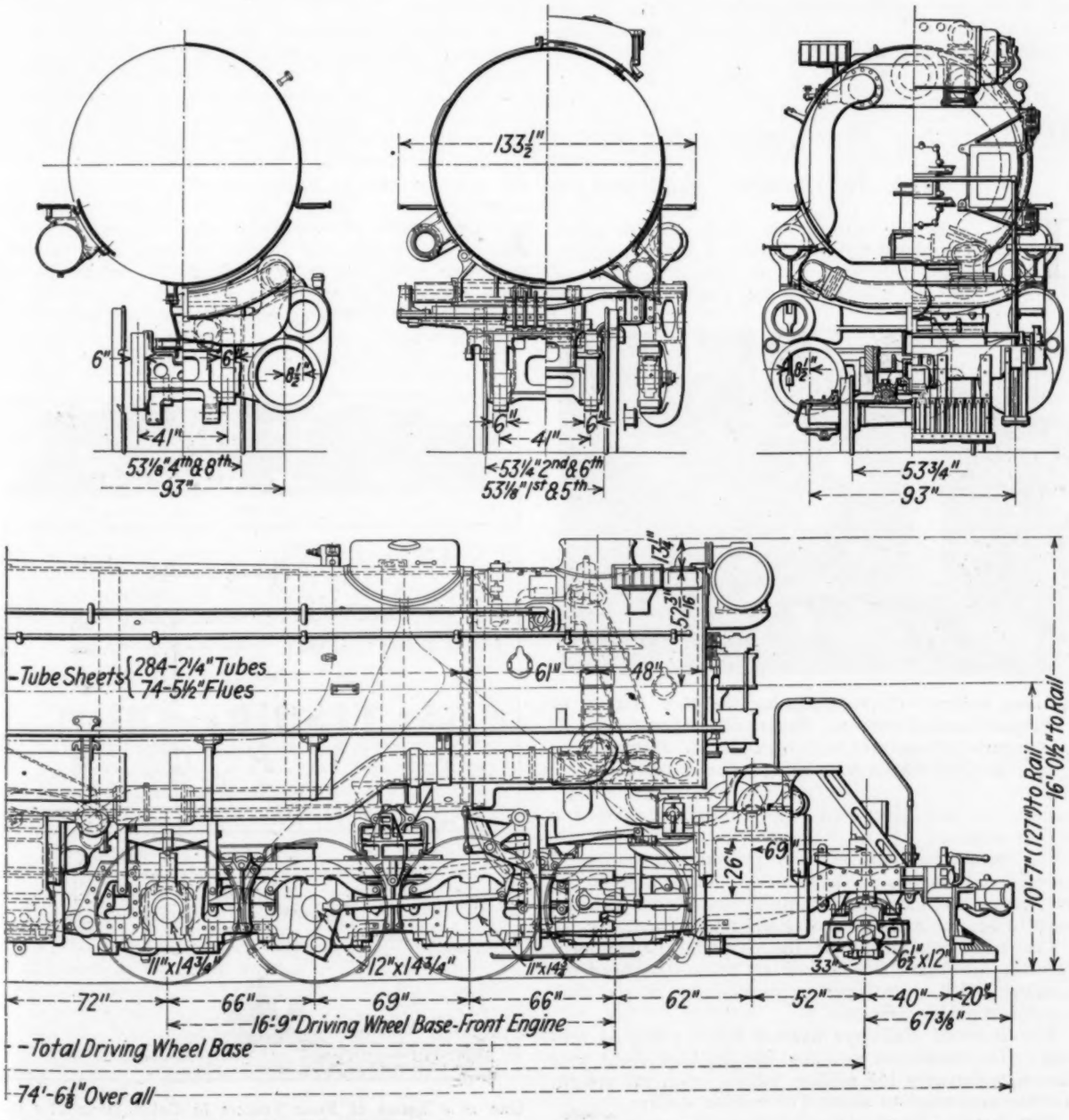
The header has the two regular equal size steam outlets connecting with curved steam pipes following the inside contour of the smokebox. The right-hand pipe projects through the smokebox wall below the running board and is turned to the rear by means of an elbow containing an expansion joint to lead the steam to the rear cylinders. It joins a cross-over pipe at a point just in front of the rear cylinder saddle which conveys the steam to each of the rear cylinders. The left-hand steam pipe in the smokebox terminates at its lower end in a ball joint packing gland, from which an S-shape connection provided with a slip joint, leads the steam to the cross-over pipe feeding the two front cylinders.

The exhaust from the front cylinders returns to the bottom of the smokebox through a similar S-shape connection, while the exhaust from the rear cylinders is brought forward through a pipe on the left side, located similar to the steam pipe on the right side. Only two outside lines of pipe are required to convey the steam to and from the rear cylinders.

The Running Gear

The total weight of one of these locomotives is 649,000 lb., of which 40,500 lb. is carried on the engine truck, 559,500 lb. on the drivers, and 49,000 lb. on the trailer. The weight of the boiler carried on the front engine is transmitted through a single bearing. The driving wheel base of each engine unit is 16 ft. 9 in., while the total wheel base of the engine is 62 ft. 10 in.

The engine truck is the Alco design, outside bearing truck, using A.R.A. journal bearings, wedges and box lids, attached to a one-piece cast steel frame. Constant



Locomotive for the Denver & Rio Grande Western

resistance centering effort is provided through geared rollers operating on inclined planes, and a central semi-elliptic spring replaces the usual spindle. Alco renewable hub liners are applied to the inside faces of the truck boxes.

The trailer truck is also of Alco design and embraces an improved method of connecting the geared roller centering device to the frame structure so as to perfectly compensate for the radial swing of the truck, while the rollers travel in straight lines.

Each of these locomotives is equipped with an Elesco feedwater heater and one Hancock non-lifting injector, also Ashcroft cut-off control gages and the Alemite system of lubrication.

The tender, which has a capacity of 18,000 gal. of water and 30 tons of coal, is carried on two Commonwealth six-wheel trucks provided with clasp brakes. The wheels are 33 in. in diameter and have 6½-in. by 12-in. journals. The tender frame is also of a Commonwealth steel casting. The weight of the tender loaded is 343,500 lb. Alco twin drawbars connect the tender to the locomotive.

Accounting Machinery for the Japanese Railways

THE Imperial Government Railways of Japan have completed the installation of a new mechanical accounting system representing the first of its kind among the railroads of the Far East, and em-

Japanese Railroad Clerks Operating the New Battery of Powers Sorting Machines Recently Installed on the Imperial Government Railways of Japan. Picture Shows the Main Accounting Office at Tokio

bodying a total investment reported to approximate a million dollars.

The installation consists of 47 printing tabulators, 51 sorters, 151 automatic keypunches, manufactured by the Powers Accounting Machine Corporation which has recently become a division of Remington Rand, Inc.

The main equipment of the Imperial Government Railways of Japan is centered at Tokio, the head accounting office, with smaller installations at six divisional accounting offices.

The Imperial Railways operate 8,000 miles of railroad. The passenger revenue for the past fiscal year was approximately 165 million dollars, while the freight revenue amounted to about 110 million dollars.

The details of accounting work in Japanese freight and passenger traffic operations are more complicated than in the case of American railroads. An American railroad, for example, operating approximately ten thousand miles of railroad, with the same number of stations, would utilize an average of only 950,000 cards per month on freight traffic work, as compared with the 7,000,000 average reported for the Japanese railroad system.

These railways changed their freight accounting procedure from a monthly to a daily plan and shortly after the change was made, adapted Powers equipment to the daily system of accounting. With the system of accounting now in effect in Japan, the railroad system is enabled to handle not only a daily account of freight movements and shipments on an economical basis, but in addition it is possible to compile more statistics, directly related to railroad activities such as: ton-mile movements, commodity statistics, traffic density statistics, etc., which previously were limited to a considerable extent.

In connection with the speed of the operation of these machines, reports indicate that the Japanese clerks average a total of more than 500 cards per hour on the keypunches. This average is said to be considerably in excess of the record maintained on the same work by operators in American railway accounting offices.

Thus far tabulating equipment has been used, as in this country, only in connection with freight traffic accounting work. Due to the fact, however, that the passenger traffic plays a more important part—in revenue at least—than the freight business, and that this passenger traffic has many ramifications, because of the class system of traveling in Japan, it is proposed to utilize Powers accounting machines on this phase of the work as well.

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Southern Builds New Passenger Station at Greensboro, N. C.

Structure recently completed, together with enlarged track layout, provides modern facilities and remedies difficult operating problems

The main entrance of the new station at Greensboro

IN order to overcome a difficult operating problem due to the location, arrangement and condition of the existing facilities which had become over-taxed by increases in traffic during the last few years, the Southern Railway has constructed an attractive modern passenger station at Greensboro, N. C., and has made extensive changes and additions to its track layout at that point, in addition to eliminating two heavy-traffic grade crossings in the immediate vicinity of the new station by the construction of subways. Greensboro, which has a population of approximately 47,000, is one of the most important cities on the main line of the Southern between Washington, D. C., and Atlanta, Ga. It is also the junction point with the Winston-Salem division, and the line to Raleigh and Goldsboro, N. C., and with the Atlantic & Yadkin Railroad, which runs between Mt. Airy and Stanford, N. C. For many years Greensboro has been the heaviest transfer point of passengers' baggage and express, in North Carolina, and one of the largest transfer points in the south. At this point 42 passenger trains are handled daily, including through trains in both directions on the main line and those received and made up for the branch lines. In addition to the heavy passenger traffic, about 30 freight trains also pass through Greensboro every 24 hours.

In handling this heavy traffic, the Southern, owing to the cramped location of its passenger station facilities, has been forced to operate through a two-track "bottle neck" in front of its station, supplemented only by two short stub tracks for the branch-line trains. Aggravating this situation, which caused delays to both passenger and freight trains, was the fact that on either side of the old station were important street grade crossings which necessitated the cutting of practically every train which stopped at the station.

New Arrangement Provides Complete Facilities

Recognizing this situation, work was started in March, 1926, on a new station layout, the station itself being located about 1,300 ft. east of the old station on a large plot of ground fronting on Washington street. This new layout, which was completed and put in service on April 20, 1927, includes a large and attractive one and two-story main station building of brick construction, trimmed with Bedford limestone; a one-story extension to this building, of the same type of construction, about 165 ft. long by 39 ft. wide, for the handling of baggage and mail, and a separate express building, about 172 ft. long and 50 ft. wide, which has also been constructed in harmony with the main station. The new track layout at the station, which is immediately back of the station building and at an elevation about 14 ft. above Washington street, consists principally of eight tracks branching out from the two-track main line at either end, two of these tracks being used exclusively for freight trains in through movements, while the remaining six are used exclusively for passenger trains and are served by long intermediate covered platforms. Other tracks in the layout are provided at either end for handling express and mail cars and for the storing or holding of equipment.

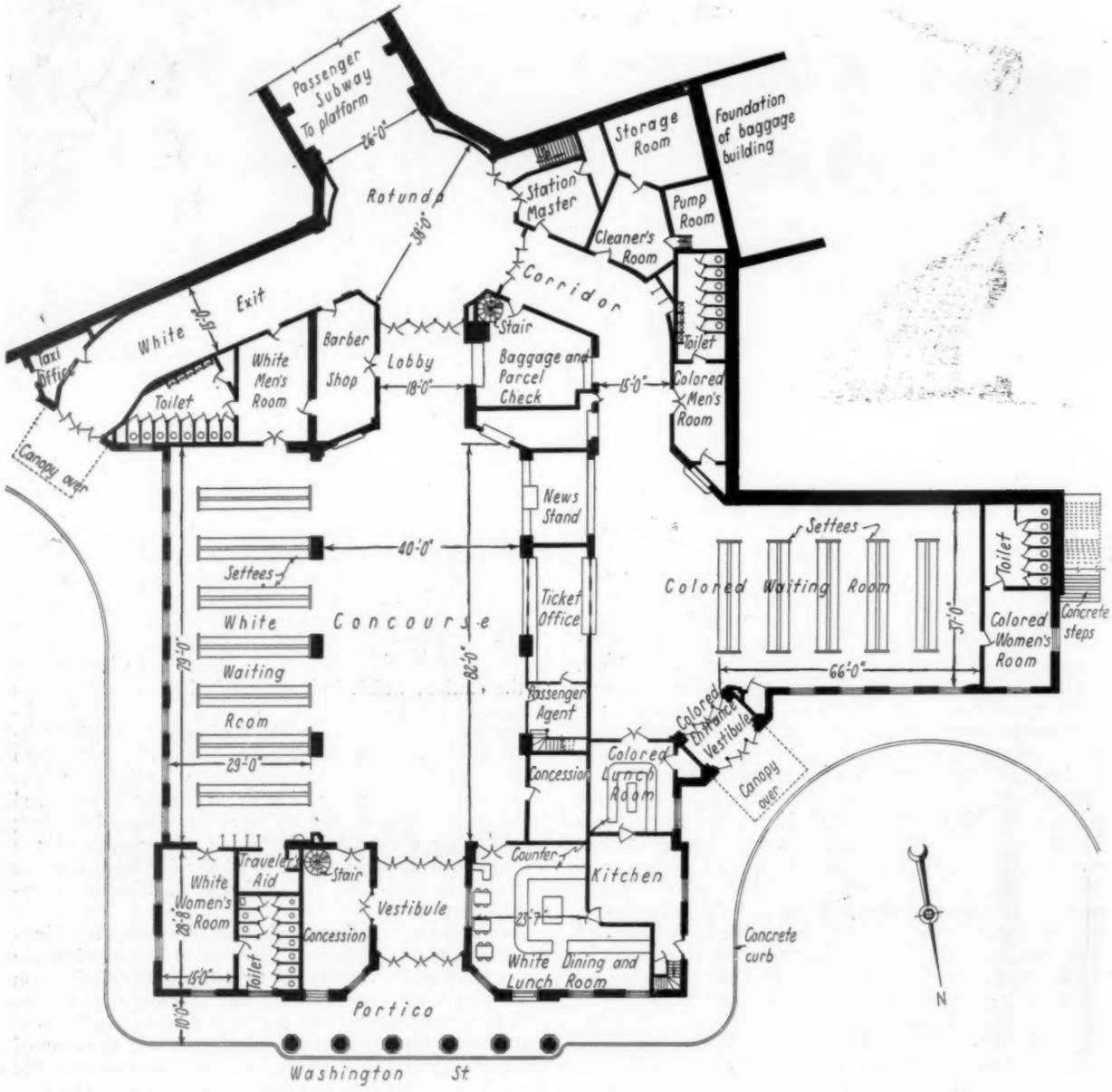
As the station tracks are about 14 ft. above Washington street, the main floor of the station is located at the street level and access to the tracks is afforded through a subway train concourse at the rear of the station, which extends beneath the tracks and from which stairs and a ramp lead to the track platforms. In the case of the baggage and mail unit of the station, however, the floor is on a level with the tracks, as is also the first floor of the express building, this having been arranged by building these units on a terrace along the west side of the station and serving them with a broad driveway at their high level, connected with Washington street by a five per cent approach in Eckels street at the west end of the express building. The station building itself is set back about 75 ft. from Washington street and is surrounded on three sides by a wide expanse of concrete pavement. This not only gives the building an attractive setting, but also provides ample space for parking and for the approach and departure of private

automobiles and taxicabs. Another feature which adds much to the appearance of the station is the large terraced areas on either side of the building, covering approximately 27,000 sq. ft., which have been fully sodded and set out in shrubbery.

Passenger Station Has Unusually Effective Layout

The exterior of the station is particularly pleasing in architectural design and arrangement, a row of six large limestone columns, surmounted by a massive balustrade of cut stone, forming a main entrance portico, which is flanked on each side by the lower red brick extensions of the building proper, which are themselves set off by the liberal use of limestone in the window casements, sills, copings and other trim, to harmonize with the main entrance. Owing to the fact that the new station is constructed at a lower level than the tracks, the second floor is at the track level, being served by a wide concrete trucking platform along its entire length, protected by a steel and concrete canopy, from which passengers are excluded.

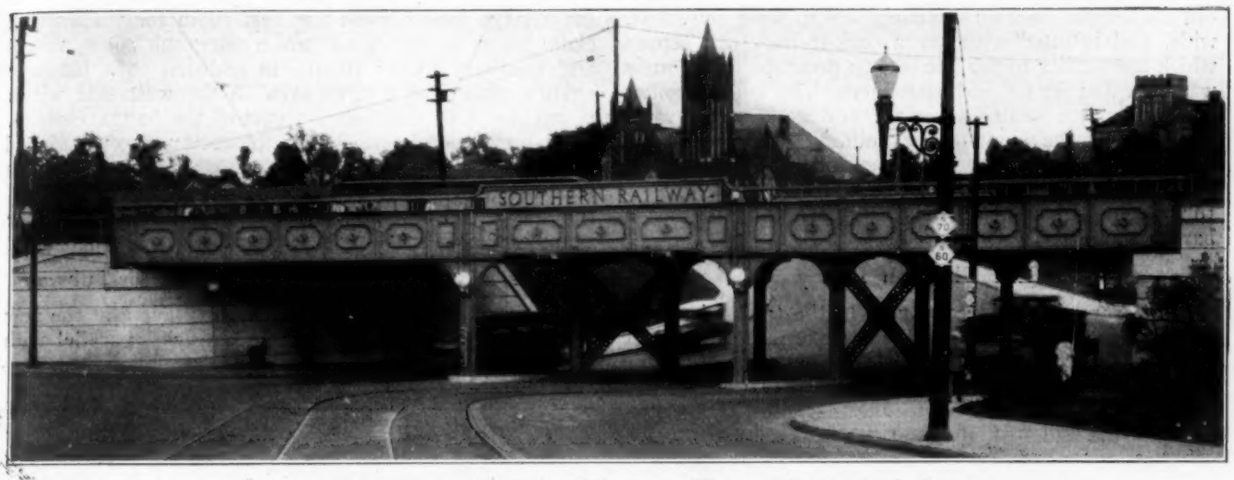
As the new station serves a southern community where it is necessary under the law to provide separate accommodations for colored people, the interior of the station has been laid out to that end. In its arrangement, the facilities for white patrons occupy the main part of the building back of the main entrance, while those for colored patrons are located along the west side of the building proper, in a wing, about 66 ft. long by 37 ft. wide, which is fitted with five back-to-back oak settees and used for a waiting room and for a woman's rest room and toilets. Separation of the facilities of the white and colored patrons is provided for by the location of the passenger agent's office, the ticket office, a news stand, a telegraph office and the baggage and parcel check room, in a continuous row between them, thus not



The Effective Layout of the New Station Provides Adequate Facilities for Both White and Colored Patrons

only providing complete separation, but affording this through a layout of the units which are most suitably located to serve as joint facilities.

With the floor area so laid out, an attractive, canopy-covered entrance vestibule and exit for colored passengers is provided along the west side of the station proper, at its intersection with the wing which forms the colored waiting room. To the left of this entrance is a colored lunch room, and directly in line with it, toward the rear of the station and the tracks, is a wide passageway, on either side of which are facilities for colored men, leading to a rotunda at the entrance to the subway train concourse.



Looking Through the Attractive Subway at Elm and South Davie Streets

Layout of Facilities for White Passengers

In the facilities provided for white passengers, which, of necessity, are larger than those provided for colored passengers, the front face of the building to a depth of about 31 ft. is divided into a large central vestibule, on the right of which is located an attractively finished dining room, equipped with a long U-shaped counter with space for serving 26 people at one time, and with eight four-chair tables occupying the wall space adjacent to the entrance vestibule and the front face of the station. On this side there is also a stairway leading to a small second floor area to the right of the upper part of the vestibule, which is used as a locker room for white station employees and for the storage of tickets.

The front of the station to the left of the main entrance vestibule is occupied by a concession, a woman's rest room and toilet, and an office for traveler's aid, space being reserved in one corner of the concession's area for a spiral stairway leading to the small second floor area on this side of the entrance which is used for general storage purposes. Directly back of the entrance and the facilities mentioned is the main concourse of the station which is surmounted by a high clear story roof with glazed vertical faces in semi-circular sash to make the station attractive and to afford adequate daylighting. This room is approximately 82 ft. long by 40 ft. wide

Looking Through the Main Concourse of the New Station

and is lined on either side by three massive rectangular columns which support the roof structure. As previously mentioned, the ticket office, the passenger agent's office, a news stand and a concession lie along the west side of the main concourse, while the waiting room for white passengers lies along the east side. This waiting room, which opens directly into the concourse throughout its length, is approximately 79 ft. long by 29 ft. wide, and is fitted with seven back-to-back oak settees which are similar to the five settees provided in the main waiting room for colored passengers. The toilet facilities for women are located along the north end of the waiting room at the front of the building, while those for men, with the addition of a smoking room, occupy an area at the south end of the waiting room at the rear of the station, where space has also been assigned for a barber shop.

Exit Through Lobby

Exit from the main concourse to the track platforms is through a wide lobby leading directly into the subway rotunda, which is about 38 ft. in diameter. Within this rotunda, on the west side of the main entrance, is the entrance to the passageway to the side of the station reserved for colored passengers and on the opposite side is another opening and passageway leading to an exit for white passengers on the east side of the building. This latter facility has been provided in order to preclude the necessity for incoming white passengers to pass through the full length of the station building in reaching taxicabs, and at the same time to relieve any possibility of congestion within or at the front of the station. From the rotunda, an attractive subway train concourse extends beneath the full width of the station track layout to serve the intermediate passenger platforms.

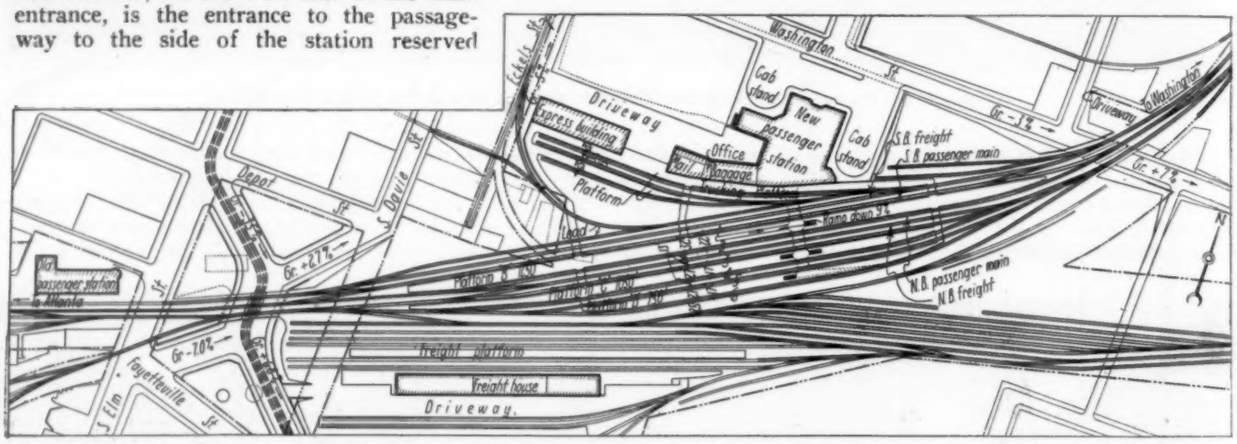
Simplicity Marks Interior Decoration

The interior of the new station is fully as attractive as the exterior, it having been finished uniformly throughout with terrazzo tile floors on a concrete base, white cement-plaster walls and ceilings, and trimmed with white-filled, weathered oak, which gives a pleasing grayish cast to all of the woodwork. In an effort to make it possible to keep the interior of the station clean and sanitary, all of the walls and columns throughout the building, both in the part for white passengers and in that part for colored passengers, are protected by a five-foot wainscoting of Granox Tavernelle pink marble. The only apparent attempt to ornament the interior of the station, the attractiveness of which is due in the main to its simplicity, is through the extensive use of sectional sash windows, the attractive, high, light blue vaulted ceiling over the main concourse, and the special arrangement of lighting fixtures.

The second floor of the station building, other than the small areas on either side of the main entrance vestibule, lies back of the main concourse and the waiting rooms at the rear of the station. Here, space is provided for a large locker room and rest room for trainmen, a claim room, a cleaner's room, a telegraph room, toilets and auxiliary locker rooms, in addition to a baggage agent's office and a large area on the west side which is integral with and forms a part of the baggage room, to be mentioned later. While the entrance to the second floor can be had from the main floor by means of two stairways, the principal entrances are along the rear of the station at the track level, leading directly from the canopy-covered trucking platform along this side.

Track Layout, Platforms and Passenger Subway

As previously stated, the main track layout at the new station consists essentially of eight tracks, parallel with one another, except at the ends, where six of them con-



General Plan of the New Station Buildings and Track Layout at Greensboro

verge into the main line tracks. In their actual order from the station building, the first of these eight tracks is used as the southbound freight main; the second, known as track No. 1, is the southbound passenger main; the third track, indicated as No. 2, is the northbound passenger main, and the fourth track, without number, is used as the northbound freight main. The other four tracks in this layout furtherest from the station are numbered 3, 4, 5 and 6 consecutively, and are assigned exclusively for the use of passenger trains.

The platforms serving these tracks are three in number: one, 22 ft. wide and 1,250 ft. long, designated "B," being located between tracks Nos. 1 and 2, the south and northbound passenger mains, while the other two platforms, designated "C" and "D," are 17 ft. wide and 1,050 and 750 ft. long, respectively, and lie between passenger tracks Nos. 3 and 4, and 5 and 6. All of these platforms are six inches above the top of the track rails, platforms "B" and "C" being paved with concrete, with the exception of about 320 ft. at the west end of platform "C," which is of asphalt, while platform "D" is of asphalt throughout, with timber curbing, except for 100 ft. of concrete directly over the subway train concourse.

The platforms are protected by butterfly type shelters, ranging in length from 136 ft. over platform "D" to 836 ft. over platform "B," the shelters being built with structural steel columns and purlins, covered with wood

sheathing and tar and crushed slag roofing. An unusual feature of these shelters is the fact that in each case they extend well over the curb lines of the platforms, affording additional protection to passengers while boarding or leaving trains. This is made possible by the special track layout at the station which locates the freight mains between the passenger tracks and away from the platforms, where there is no interference with the projecting roofs of the shelters. This arrangement of the tracks also prevents delays to both freight and passenger trains through the station, and, as all of the platforms are served directly from the subway train concourse, passengers are at no time interfered with or endangered by the movement of freight trains.

The subway train concourse serving the track platforms is 26 ft. wide and has a full length of 175 ft. This subway is constructed with waterproofed concrete side walls, which, together with a central row of concrete-encased steel columns, support the heavy steel roof members, which in turn carry the waterproofed concrete slab deck of the tracks and platforms. The entire interior finish of the subway is similar to that in the station proper, it having a terrazzo tile floor on a concrete base, cement-plaster walls, columns and ceiling, and white-filled, weathered-oak door frames, sash and trim at each exit to the station platforms. For the convenience of passengers, markers are displayed at each platform entrance, the subway is well lighted by two rows of ornamental ceiling lamps, and oak settees have been provided within recesses at frequent intervals along the side walls.

The exits from the subway, of which there are two to each platform, except at the most distant platform, where only one is provided, open out on stairways which lead to the platforms. The only exception to this arrangement is at the first platform serving both the north and southbound passenger mains, where a ramp of 153 ft. long and 6 ft. clear width, with a 9 per cent grade, has been provided on one side for the convenience of passengers and as a means by which invalids' wheel chairs can be handled without the necessity for an elevator. In each case, the stairways and ramp are of concrete construction, the side walls being thoroughly waterproofed with integral waterproofing in order to prevent the seepage of water which may collect in spite of the extensive drainage system which is provided under the track and platform layout.

Baggage, Mail and Express Facilities

Supplementing the main track layout as described, there is a lead track, about 1,100 ft. long, which comes off from and lies parallel with the southbound freight track. From this lead, three stub tracks, ranging in length from about 465 ft. to 650 ft., diverge and swing around parallel with the rear faces of the station and express building. These tracks, which are served by the long concrete platform at the rear of the station and by an intermediate concrete platform, are used for the storage of cars and for the loading and unloading of mail and express. Other tracks in connection with the new layout consist of industry spurs just west of the express tracks, and three stub tracks which come off from the southbound freight main and lie immediately east of the station. These latter three tracks are used principally for official cars and the holding of equipment to be made up into trains.

As already stated, the baggage and mail facilities at the new station are located within a one-story wing on the west side of the station proper, at the level of the tracks. This unit is of brick construction, with a tar and slag-protected cement tile roof, and is in every respect in complete harmony with the architectural treatment of the station building. In the division of space within this unit, which is 165 ft. long and 39 ft. wide, the first 88 ft. immediately adjacent to the station, as well as a considerable area of the second floor of the station itself, is used for the handling of baggage, while the remaining space at the east end of the wing is used exclusively for handling mail, these facilities being completely separated by a brick fire wall.

The trucking floors of both the baggage and mail units are of concrete with a specially treated wearing surface, these in each case being on a level with the concrete platforms along the track side of the building. Along the teaming side of the entire unit, a special concrete transfer platform has been provided at tail-board height, to permit the transfer of loads directly from wagons or highway motor vehicles to the platform trucks at the station, or vice versa, without the necessity of raising or lowering them. This platform, which is 15 ft. wide, extends 3 ft. from the face of the building and 12 ft. within the building, the outside or exposed portion being protected by an over-hanging canopy which also affords protection to loading or unloading operations. Both sides of the baggage and mail units are fitted with a series of vertical bi-folding wood doors with sufficient sash area to provide adequate daylighting of the building when the doors are closed. Directly beneath the mail unit is the station boiler room which supplies steam to the heating systems within the station and the express building, and also to the storage tracks for heating coaches.

The express business at the station is handled within the new express building, which is located about 90 ft. directly west of and on a level with the baggage and mail unit. This building, which is 172 ft. long by 50 ft. wide, is also constructed in harmony with the rest of the station layout, and is, in reality, a two-story structure with a one-story express room for the handling of inbound and outbound shipments. In almost every detail, the express room is similar in construction to the baggage and mail unit, this room having a concrete shipping floor at the track level, a special concrete transfer platform on the teaming side, a tar and gravel roof, and canopies extending from both sides of the building. The two-story section of the express building is used entirely for express offices.

City trucking to and from the facilities just described is greatly facilitated around the station through the provision of a 50-ft. concrete driveway, which extends from Eckels street, east along the full length of the baggage, mail and express units. Platform trucking from the opposite sides of the buildings is also greatly facilitated by the provision of adequate platforms, which afford direct access to the mail and express tracks and also to the passenger track platforms by means of plank grade crossings toward each end of the station layout.

Subways Eliminate Two Grade Crossings

The two grade crossing elimination projects carried out in connection with the construction of the new station at Greensboro included one at Washington street, just east of the station, and the other at Elm and South Davie streets, just west of the station. The first of these consisted principally of the construction of a subway under three tracks, and the work did not therefore involve any unusual difficulties. The structure at this point consists of a two-span, three-track, through plate girder bridge, consisting of four lines of girders, resting on concrete abutments at the street lines and on a central pier within the street area. Provision is made for 12-ft. 6-in. vertical clearance between the bridge and the

street pavement, the street approach to the undercrossing on the west side being on a 3 per cent grade, while that on the east side is on a 7 per cent grade.

At South Davie street, a diversion of the street to the west and a similar diversion of South Elm street to the east made it possible through an X arrangement of the street approaches under the tracks to let one subway carry all of the traffic in both streets, including the street cars in Elm street. At present, this new subway handles all of the traffic on both streets adequately, although arrangements could not be made to do away with the grade crossing at Elm street. The joint subway was constructed with two 25½-ft. roadways, each with a 10-ft. sidewalk, and with a center span for trolley tracks of 26½ ft.

In spanning this total distance of 97½ ft. between abutments with a minimum change in the elevation of tracks and a minimum amount of excavation, a three-span, through plate girder bridge was used, consisting of four rows of plate girders, supported on end abutments and on two intermediate steel piers located 26½ ft. apart within the street area. In the case of both this bridge and the one crossing Washington street, the subways have been made unusually pleasing in appearance through the use of paneling on the outside girders and through large plates, centrally located above the outside girders on both bridges, bearing the inscription, "Southern Railway."

All of the work at Greensboro, which involved the new buildings, approximately 41,000 cu. yd. of grading, 78,000 sq. ft. of concrete platforms, 75,000 sq. ft. of driveways and walkways, 3,000 ft. of 10-in. to 42-in. drains, and approximately 26,400 lin. ft. of new tracks, in addition to the two street subways and much auxiliary work, was carried out under the direct supervision of B. Herman, chief engineer. The actual work in the field was in direct charge of O. D. Colaw, resident engineer. The architects and engineers for the new station buildings and underpasses were Fellheimer & Wagner, New York, while the general contractors on the station buildings and underpasses were the Consolidated Engineering Company, Baltimore, Md., and the North Eastern Construction Company, New York, respectively. All of the track work was carried out by company forces.

I. C. C. Report on Fatal Collision at Iona Island

THE Interstate Commerce Commission has issued a report, dated August 4 and signed by W. P. Borland, director of the Bureau of Safety, on the rear collision which occurred on the West Shore (New York Central) at Iona Island, N. Y., on July 5 when four passengers were killed and five were injured. The report places the blame on the flagman of the freight and the engineman of the passenger train.

A southbound freight of the West Shore, having just entered a side track and still moving at 6 or 8 miles an hour, was run into at the rear-end by a following passenger train, No. 124, of the New York, Ontario & Western, moving at 15 miles an hour or less, the rear-end of the freight having reached a point about 290 ft. beyond the switch. The first car of the passenger train, a baggage car with a steel-underframe, telescoped the front end of the coach next to it, which was wooden, for a distance of 18 ft. and it was in this coach that the casualities occurred. The coach was equipped with metal braces intended as a preventive of telescoping.

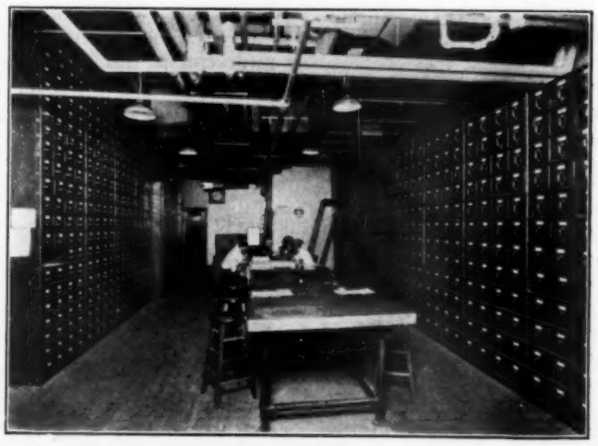
Automatic block signal 414 stands 48 ft. back of the switch and signal 420 is 3,803 ft. back. Signal 414 has two arms, the upper of which indicated stop and the lower, caution. The distant signal indicated caution.

The report takes six closely printed pages for an abstract of the testimony taken at the investigation, but the conclusion is quite brief. The men on the freight train knew that the passenger train was closely following, and knew that they should have cleared the main track several minutes earlier; the conductor took no measures to provide protection and the flagman, although he was out a short distance, did not afford proper protection. The engineman of the passenger train claimed to have thought that the flagman's flag meant caution, not stop. This engineman had applied brakes on seeing signal 414 standing against him but evidently was not keeping a good look out. He claimed to have seen the caution signal (3,803 ft. in the rear of the switch) change from caution to proceed, but in this, says the report, he was mistaken; the signal functioned properly. The engineman also failed to see the switch target, which was in plain sight.

The freight had done work at a station about one mile back and the flagman had there returned to his train without putting down torpedoes. His claim that he had put down torpedoes at two other places near by, was contradicted by other testimony. This flagman was a man 46 years old with 18 years' experience. The engineman had been a fireman about 15 years and an engineman for about five years. He had been running this train for about 10 days. His engine in this case was one with a double cab, equipped with a speaking tube for use by the engineman and the fireman in acknowledging fixed signals, but he admitted that he and his fireman were not in the habit of using this tube as it "requires too much of his time and takes his attention away from the track." When on an engine of the single-cab type he says that he customarily calls the signal indications to the fireman.

The fireman of this train admitted that he did not see the caution signal. When some distance back he saw the freight, but thought it was clear of the main track. Neither the fireman nor the engineman knew that there was danger of their engine entering the siding, until it passed over the switch.

The report calls attention to the superiority of steel cars and observes that if all the cars in train 124 had been all-steel probably no fatalities would have occurred.



Lyon Metallic Cabinets in Baggage Record, Lost and Found Department, Chicago Union Station

Texas & Pacific Improves

Earnings so far in 1927 about equal to those of 1926—
Improvement in recent years substantial
but not spectacular

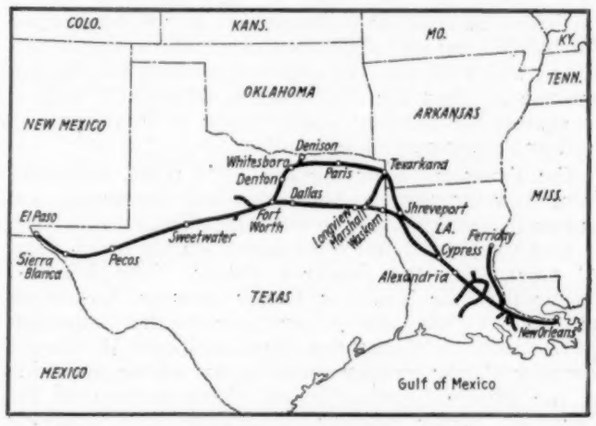
THE price of Texas & Pacific common stock has had a range thus far in 1927 between 53⅞ on January 7 and 102½ on June 21. It is now selling at about 82. Considering that this stock pays no dividends, and that the company has been out of receivership only since 1924, this price may seem somewhat high and presumably reflects the prospect of improved earnings and the hope on the part of those who are willing to pay that price that the payment of dividends may be inaugurated in the not too distant future.

The earnings statement for the first seven months of 1927 issued this week shows net income after interest and other charges to the end of July this year of $1,216,075 as compared with $1,052,686 in the first seven months of 1926, a difference of only 15½ per cent. This excess is now less than it was earlier in the year, thereby indicating that the earnings of 1927 will probably not come far from approximating the earnings of 1926, which for the year were equivalent, after allowance for preferred dividends, to $7.07 per share on the common stock. Earnings per share in 1925 were $6.80 and in 1924, $6.96.

The high price of over par for the common stock in June, 1927, was reached at a time when the road was reporting relatively larger earnings than at present. For a time it looked as if the company might earn as much as $10 a share in 1927, particularly at the end of the first four months, when the net income after charges showed an excess of 60 per cent. over the net for the first four months of 1926. The Mississippi Valley floods with their adverse effect on traffic and on operating and maintenance expenses explain why this lead over 1926 has not since been maintained. Merger possibilities which affected the price of many other non-dividend railroad issues early in the year could not have affected Texas & Pacific because it is already a part of the Missouri Pacific system and has been operated in the interest of the Missouri Pacific since it first came under Gould control in 1900.

Reorganization

The Texas & Pacific has had a substantial, although not spectacular, improvement in its physical characteristics and earning power during the past four or five years, as will be observed from the details given in Table I. The company was in receivership from 1916 to 1924, the reason for the receivership being chiefly the company's failure to pay interest on $26,000,000 income mortgage bonds held by the Missouri Pacific and a suit brought by the latter to enforce payment. Reorganization was deferred, not so much by lack of earning power, as by restrictions embodied in the company's Federal charter. The charter was amended by an Act of Con-



The Texas & Pacific

Table I—Texas & Pacific, Operating Results, Selected Items, 1916 to 1926

	1916	1920	1921	1922	1923	1924	1925	1926
Mileage operated	1,944	1,947	1,951	1,953	1,953	1,953	1,953	1,954
Total operating revenues	$19,156,856	$41,844,190	$35,600,474	$31,381,795	$32,592,489	$33,784,580	$35,272,899	$35,449,650
Total operating expenses	13,815,976	37,459,040	28,424,905	25,494,086	24,981,658	25,242,324	26,453,802	26,488,388
Net operating revenues	$5,340,881	$4,385,151	$7,175,569	$5,887,710	$7,610,831	$8,542,256	$8,819,097	$8,961,262
Railway tax accruals	920,438	1,337,259	1,437,974	1,230,397	1,430,000	1,837,500	1,917,500	1,849,921
Railway operating income	4,410,635	3,039,567	5,727,387	4,648,370	6,152,999	6,665,560	6,866,691	7,098,476
Hire of freight cars, Dr. bal.	377,682	1,320,983	1,253,238	1,029,132	979,935	926,315	967,162	953,835
Net railway operating income	3,920,096	1,474,127	4,545,689	3,629,473	5,237,535	5,801,611	5,974,105	6,240,676
Non-operating income	184,155	3,316,283	341,322	316,130	371,812	346,103	373,137	368,658
Gross income	$4,104,251	$4,790,410	$4,887,011	$3,945,603	$5,609,347	$6,147,714	$6,347,242	$6,609,333
Deductions from Gross income	1,805,802	2,399,578	2,146,287	2,173,018	2,176,236	2,269,122	2,525,687	2,681,993
Net income	$2,298,450	$2,390,832	$2,740,724	$1,772,584	$3,433,111	$3,878,591	$3,821,555	$3,927,341
Dividends on preferred stock	.....	.....	.....	.....	.....	707,798	1,185,150	1,185,150
Appropriations	1,125,713	2,989,564	2,422,097	1,772,584	3,433,111	.....	.....	.....
Surplus	$1,172,737	def.$598,732	$318,629	.....	.....	$3,170,793	$2,636,405	$2,742,191
Earnings per share on stock	$2.75*	$2.99*	$3.89*	$1.39*	$5.68*	$6.96†	$6.80†	$7.07†
Total revenue tons carried	7,417,606	9,668,424	8,008,985	7,732,902	8,892,982	9,394,609	10,289,434	10,190,233
Refined petroleum, tons	632,344	1,210,417	1,181,741	1,055,497	997,255	1,141,210	1,428,142	1,592,720
Per cent ref. petroleum of total	8.53	12.52	14.76	13.65	11.21	12.15	13.88	15.63
Revenue ton-miles (thousands)	1,462,726	1,807,455	1,393,435	1,379,505	1,419,938	1,616,722	1,755,271	1,841,896
Revenue passenger miles (thousands)	177,671	413,432	252,044	208,717	218,098	204,470	194,338	185,652
Rev. per ton per mile, cents	0.915	1.453	1.747	1.576	1.583	1.480	1.484	1.442
Transportation ratio	39.34	43.88	38.70	37.74	35.24	34.30	35.05	35.19
Operating ratio	72.12	89.52	79.85	81.24	76.65	74.72	75.00	74.72
Per cent net operating income to total operating revenues	20.5	3.5	12.8	11.5	15.6	17.2	17.0	17.6

* After allowance for 5 per cent interest on 26 million income bonds, not paid. † After allowance for 5 per cent preferred dividends.
NOTE:—1916 figures are for fiscal year ended June 30.

gress in 1923 and it was found possible to reorganize the company without foreclosure. In this reorganization 5 per cent. non-cumulative voting preferred stock was exchanged for the 5 per cent. income mortgage bonds. Inasmuch as the Missouri Pacific already owned $10,000,000 of $38,755,000 common stock, the acquisition of this new voting preferred stock gave the Missouri Pacific a majority stock control in place of its large interest as a debtor, and, in addition, the Missouri Pacific gained a substantial increase in its income, because the preferred stock has paid dividends from its date of issue, whereas the Missouri Pacific had been receiving no interest on the equivalent amount of income bonds. The change, of course, was particularly beneficial to the Texas & Pacific because its proportion of bonded indebtedness to total capitalization after the reorganization was only 43.4 per cent. The company at the end of 1926 had a funded debt outstanding per mile of only $25,486. More explicitly, the company's funded debt at the time totaled $47,138,053 and its total stock outstanding was $62,458,110 of which $38,755,110 was common and $23,703,000 preferred. Thus the capitalization totaled 109 million as against the company's book value of investment in road and equipment of 149 million.

The Texas & Pacific operates 1,954 miles, extending from New Orleans via Alexandria and Shreveport, La. and north Texas points across western Texas to El Paso. It uses trackage rights from Sierra Blanca to El Paso, 92 miles, over the Southern Pacific. The Missouri Pacific uses the Texas & Pacific between Alexandria and New Orleans for its entrance to that important port. Between Whitesboro, Tex., and Fort Worth the Texas & Pacific mileage forms a part of the main line of the Missouri-Kansas-Texas. That portion of the Texas & Pacific between Texarkana and Longview Junction forms the middle link in the route of the Missouri Pacific's Sunshine Special which operates between St. Louis and Texas points.

Traffic

The Texas & Pacific has a diversified traffic, its most important commodities being oil, lumber and fast freight tonnage including traffic west or northwest out of the port of New Orleans, and including a substantial volume of eastbound California perishables. Bituminous coal constitutes but 2.3 per cent. of the total revenue tonnage. It is in connection with refined petroleum and its products that the company has its most promising features. In 1926 the tonnage in this group totaled 1,592,720 or 15.63 per cent. of the total revenue tonnage. This was the largest amount of this commodity carried in the company's history. It was 11 per cent. larger than in 1925 and about 40 per cent. larger than in 1924.

An interesting phase of the Texas & Pacific's comparatively recent history was the development of the Ranger field about 1920, when overnight the business at Ranger, Tex., hitherto a one-man station, suddenly expanded to about $1,000,000 a month and then later, with equal suddenness, almost disappeared due to the drying up of the field. It was not until 1925 that the oil traffic of 1920 was again exceeded. All of the increase in revenue tonnage in 1926 over 1920 was in oil. The particular importance of this detail is that the Texas & Pacific is believed to serve a very rich oil area in west Texas which some people believe may prove as fruitful as the Panhandle district. Whatever may be the expectation in this respect, there is no doubt that the present high price of Texas & Pacific stock and the possible expectation of dividends is due to the hopes regarding what the western lines of the Texas & Pacific may develop.

Physical Improvement

The Texas & Pacific in recent years has devoted considerable attention to improvement of its physical characteristics. Whereas at the end of 1923 the heaviest rail in track on the Texas & Pacific was 85-lb. and rail of such weight constituted about 45 per cent. of all the rail in track, at the end of 1926 there were 230 miles of 90-lb. rail and 65 miles of 110-lb. rail. Of the same order has been the improvement in motive power. At the end of 1923, the road owned 358 locomtives with an average tractive force of 34,071 lb. Its heaviest locomotive at the time was of the Santa Fe type with a tractive force of 62,620 lb., of which the company owned 44. At the end of 1926, the company owned 348 locomotives with an average tractive force of 39,621 lb. The most important acquisition during the three-year period included ten locomtives of 2-10-4, or Texas type, having an average tractive force of 96,000 lb., and the possession of these has not doubt greatly assisted in the striking improvement that the company has made in its operating efficiency.

Table II—Comparison of Selected Freight Operating Statistics

	1926	1920	Per cent of change Inc.	Dec.
Mileage operated	1,954	.....	....	....
Gross ton-miles (thousands)	5,666,481	4,646,194	21.9	....
Net ton-miles (thousands)	2,107,221	1,987,501	11.6	....
Freight train-miles (thousands)	3,639	4,111	....	11.5
Freight locomotive-miles (thousands)	3,653	4,183	....	12.6
Freight car-miles (thousands)	155,096	122,364	26.8	....
Freight train-hours	283,901	440,374	....	35.5
Tons of coal consumed by freight locos.	361,901	467,077	....	22.5
Car-miles per day	33.9	22.2	52.7	....
Net tons per loaded car	21.3	23.5	....	9.4
Per cent loaded to total car-miles	63.7	69.2	....	5.5
Net ton-miles per car day	460	360	27.8	....
Freight cars per train	43.6	30.8	41.5	....
Gross tons per train	1,557	1,130	37.8	....
Net tons per train	579	483	19.9	....
Train speed, miles per train-hour	12.8	9.3	37.7	....
Gross ton-miles per train-hour	19,959	10,551	89.2	....
Net ton-miles per train-hour	7,422	4,513	62.9	....
Lb. coal per 1,000 gross ton-miles	111	.....	....	....
Loco.-miles per loco.-day	54.6	58.0	....	5.8
Per cent freight locos. unserviceable	15.3	34.7	....	19.4
Per cent freight cars unserviceable	3.9	8.5	....	4.6

Operating Efficiency

Table II. gives a comparison of the freight operating statistics of 1926 as compared with 1920. In this table it appears that the company in 1926 handled 21.9 per cent. more gross ton-miles, but that it succeeded in moving this increased business with a decrease of 35.5 per cent. in freight train-hours and with a reduced fuel consumption of 22.5 per cent. There was an increase of 37.8 per cent. in the gross tons per train and an increase in the train speed from 9.3 miles per train-hour in 1920 to 12.8 in 1926. The result of the combination of increased train-load and speed is shown in an increase of 89.2 per cent in the gross ton-miles per train-hour which indicates that the company's operating efficiency has advanced to an entirely new position. The Texas & Pacific's increase in gross ton-miles per freight train-hour of 89.2 per cent. in 1926 over 1920 compared with an increase of 58.5 per cent. for the southwestern region. It also appears, however, that in 1920 the Texas & Pacific was somewhat out of line, whereas it is now nearer average. The Texas & Pacific's figure of gross ton-miles per freight train-hour in 1920 was 86 per cent. of the average for the region, whereas in 1926 it was 102 per cent.

Great Northern Saves $50,000 on Stationery

THE Great Northern has completed an investigation of its stationery which resulted in a $55,000 reduction in its expenditures for this material or an estimated saving of about $50,000, after deducting $4,689 to cover the expenses of the work. This investigation was carried through 18 months, during which 3,689 forms were examined. Of these forms 379 were found to be obsolete or out of use. A total of 651 were consolidated and 1,980 were revised, leaving only 679 forms which received no alteration.

The savings were made by standardizing sizes, reducing varieties and cheapening the quality of the paper stock where possible. It is a common practice over the country for the heads of using departments to approve the requisitions for stationery supplies, but there are so many different ideas about what each department wants that the ultimate collection of forms in use not only includes many that are not required, but also many forms which have been made unnecessarily expensive. For instance, an enameled stock is employed where plain paper will do, or lines are ruled in red where they could just as well be black, etc. The Great Northern has prided itself on its low cost of stationery, but these conditions were not foreign to its own operations and the investigation was ordered with the expectation that substantial economies could be made.

The investigation was put in charge of a special committee of nine officers, two from the purchasing department and one each from the accounting, law, treasury, operating, engineering, passenger and freight departments. The comptroller was made chairman, a full time clerk and stenographer were assigned to handle the details and the committee was given absolute authority to handle all matters to a conclusion.

The procedure was, first to bring each form to the attention of the particular department or departments using it in order to obtain all the information essential to a decision about it. A questionnaire was employed in this connection, this questionnaire disclosing how many of the forms in question were purchased annually and their cost and asking those receiving it to co-operate with the committee by answering 14 or more printed questions as follows:

Give a brief history, if possible, as to the origin of this form and for what purpose it is required. (Use separate sheet if necessary).

Do you recommend the continuance of this form? Why?

Would you be willing to continue this form as standard for one year, to enable us to buy in larger quantities?

Are the facts or figures secured on this form being duplicated elsewhere? If so, on what other form?

Do you know of any other forms that could be incorporated with this one? If so, what forms?

Is it possible to reduce the size of this form to ——— without impairing its practicability?

Would not this form, printed on paper as per sample attached, answer the purpose satisfactorily? If not, why?

Is this form prepared with pen, pencil or typewriter?

Are not some of the columns, questions or statements superfluous?

Is this form made out in single, duplicate, triplicate, quadruplicate, or more?

What disposition is made of the form after it is made out and to whom are copies sent?

For what period of time is it necessary to keep this form according to I. C. C. rules?

Can we eliminate the colored ruling and use black ink throughout? Will not a cheaper cover be satisfactory, as described below? What amount of this form have you on hand at the present time?

With the aid of this information in the questionnaire together with prices and other data obtained by the secretary from the purchasing records or from outside correspondence the stationery committee then determined whether to change a particular form in any respect or not. In every case where a cancellation or revision was made a letter of instructions to the purchas-

FORM NO. _____ NAME _____

Referred to	Date	Returned	Recommended Action

	Size	Stock	How Put Up	Remarks
As Now Printed				
Revised				
"				

	Quantity	Will Last	Price	Price Per M	Yearly Consumption	Total Cost for Year	Yearly Saving	
As Now Printed								
Revised								

Sent out for bids	I. C. C. Rules Require kept:	NOTES:
Quantity.	After prepared report sent to	
Awarded:		
Price:		

Form of Card Used to Keep Office Record of Progress of Study, Final Disposition and Savings in Each Case

ing agent was issued, identifying the form in question and giving a comparison of the previous and revised specifications with the estimated yearly savings attendant upon the change, and this form then became the basis for purchases. Meanwhile, a card file in the possession of the secretary provided a progressive record of the entire transaction from the time the questionnaire was sent out to the computation of savings and the final decision.

The investigation was thoroughly done and, while launched primarily to reduce the cost of the forms to the railroads, was welcomed by the various departments for the opportunity it afforded to bring about numerous changes in forms which would increase their usefulness. The savings calculated represent actual savings accruing from standardizing, reducing sizes or cheapening the stock over what it would have cost to obtain the previous forms at prevailing prices. For the large majority of forms the 16 lb. No. 2 cream parchment was adopted as standard, and all forms have dimensions which make it possible to produce them from standard commercial sizes of paper. Coincident with the adoption of new standards it has been found possible to obtain further savings than those already shown through the medium of gang printing; that is, by purchasing according to a plan whereby forms produced from the same stock and having a standard size can be printed together.

Canadian Rates Reduced In "Equalization" Decision

OTTAWA.

FOLLOWING the most extensive investigation yet undertaken the Dominion Railway Board issued at Ottawa late last week an important order affecting railway freight rates in Western and Eastern Canada. The order, which is divided into five parts, provides, in brief, for the following:

1. Reduction of rates on grain and flour on the Canadian Pacific branch lines in the three prairie provinces (Alberta, Saskatchewan and Manitoba) down to the level of the main line rates (Crow's Nest Pass agreement basis), and applying those reduced rates to all railway lines in those provinces;

2. Refusal to rescind the order issued some months ago by Chief Commissioner H. A. McKeown and Commissioner Frank Oliver, the effect of which order was to remove the Rocky Mountain differential on grain and flour west bound for export at Vancouver and Prince Rupert (Pacific coast ports);

3. Extension of the distributing tariffs on certain commodities, as set out in the judgment of the Western Rates case of some years ago, so that these tariffs will apply not only to Canadian Pacific lines in the prairie provinces but also to the lines of the Canadian National;

4. Disallowance of the rate of 34½ cents per 100 lb. on wheat and 33 cents on other grain for export from Port Arthur, Fort William, Westfort and Armstrong, Ont., to Quebec City (National Transcontinental route), and an order to the Canadian National to file a rate of 18.34 cents per 100 lb. on all grain for export on that route;

5. An order to the railways, in connection with part 4, to file the same tariffs to Quebec City as to Montreal on grain from the Georgian Bay ports for export, and on all traffic from Toronto and points west thereof for export.

The first part of the order meets the application of the provinces of Alberta and Saskatchewan, through their counsel, S. B. Woods and W. H. McEwen, respectively; the second part is to satisfy the demands of British Columbia and Alberta, the former being particularly anxious for rates which would encourage the westward movement of grain through Vancouver; the third is to meet the demands of large distributing centers in the Prairie provinces, other than Winnipeg, for a reduction of rates for distribution of certain commodities; and the fourth and fifth are to meet the demands of Quebec City, particularly its Board of Trade and Harbor Commission, for rates that would encourage the movement of grain eastbound over what was formerly the National Transcontinental from the head of the lakes to Quebec City where there are considerable elevator facilities so far little used.

During the long hearings on what is known as the "general equalization of rates case," the Maritime provinces withdrew their application for a similar reduction of rates to extend to the ports of St. John and Halifax for winter export, and they associated themselves with the representations made on behalf of Quebec City. It is considered probable now that they will renew their application.

The general equalization of rates hearings were begun early in January, 1926, and concluded on April 30 of this year, the inquiry taking the Railway Board to practicallly every large center throughout Canada. The investigation was undertaken as the result of instructions given to the Railway Board by the government in an order-in-council dated June 5, 1925.

By that order in council the Railway Board was directed to make a thorough investigation into the rate structures of railways and railway companies subject to the jurisdiction of Parliament, with a view to the establishment of a fair and reasonable rate structure which will in substantially similar circumstances and conditions be equal in its application to all persons and localities, so as to permit of the freest possible interchange of commodities between the various provinces and territories of the Dominion, and the expansion of its trade, both foreign and domestic, having due regard to:

(a) the claim asserted on behalf of the Maritime Provinces that they are entitled to the restoration of the rate basis which they enjoyed prior to 1919;

(b) the encouragement of the movement of traffic through Canadian ports;

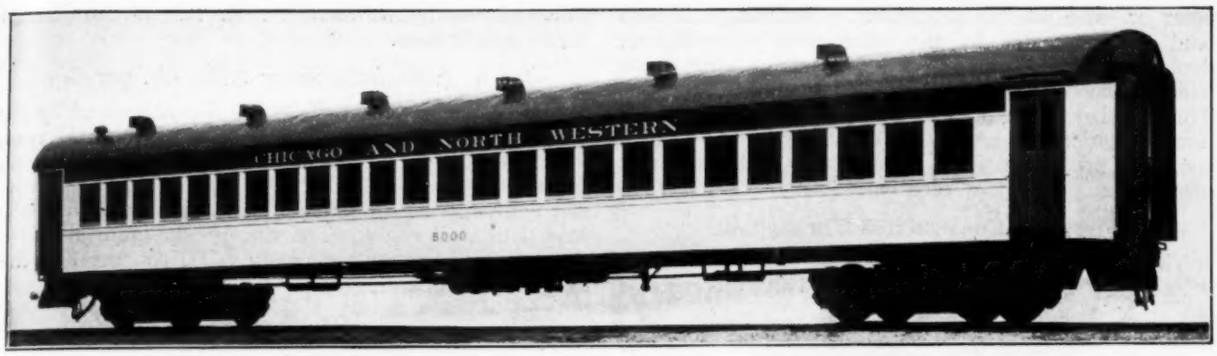
(c) the increased traffic westward and eastward through Pacific Coast ports owing to the expansion of trade with the Orient and to the transportation of products through the Panama canal.

The Board was also directed, as a part of the general rate investigation above referred to, especially to inquire into the causes of Canadian grain and other products being routed or diverted to other than Canadian ports, and to take such effective action under the Railway Act, 1919, as the Board may deem necessary to ensure, as far as possible, the routing of Canadian grain and other products through Canadian ports.

While the order is signed by all six members of the Board it is understood that when the individual judgments, on which the order is based, are made public early in September they will disclose divergences of view on the part of the various Commissioners.

The freight rate changes ordered are to become effective on September 12 next.

JACK KEATING, general manager of the Denver (Colo.), union station, has been reappointed to that office by the board of directors for the thirteenth consecutive time. He has been conneced with the union station for 21 years out of his 40 years of railroad service.



New North Western Suburban Coach Ready for Service

C. & N. W. Roller Bearing Suburban Coaches on Exhibition

First of 120 cars equipped with Melcher-Hyatt bearings —Extensive use of aluminum gives low unit weight

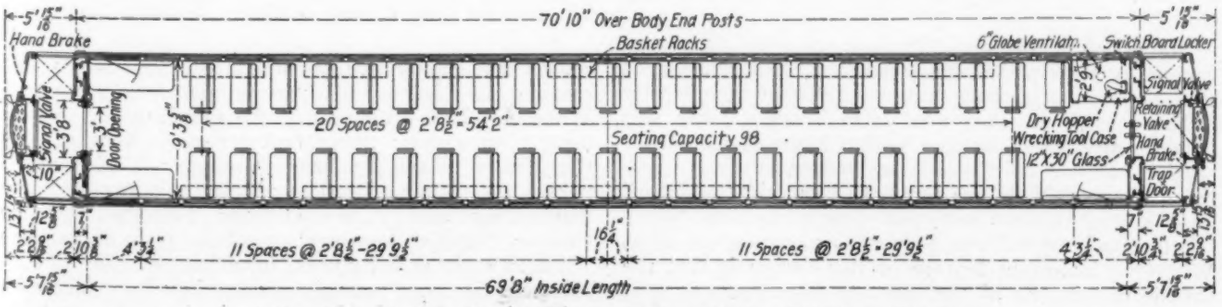
ON August 6, the Chicago & North Western exhibited at its passenger terminal, Chicago, a train of six new roller bearing suburban coaches, of a new type designed by the North Western to meet its traffic needs. One hundred of the new cars, together with 20 combination passenger-baggage cars of similar design, will be placed in service within the next month. This equipment, one-third of which is being built respectively by the Pullman Car & Manufacturing Corporation, the Standard Steel Car Company and the American Car & Foundry Company, as reported on page 395 of the *Railway Age*, issue of January 29, embodies the latest features in the design of passenger cars for suburban service.

The coaches, seating 98 passengers each or almost 50 per cent. more than the old coaches, are attractive in appearance, comfortable, well lighted and ventilated. They are quick to accelerate owing to the use of roller bearings, and, while of the same center sill strength as cars in through main line passenger service, weigh but 98,300 lbs. light, or slightly over 1,000 lbs. per passenger owing to the extensive use of aluminum alloys in the construction. These last two features, namely, the roller bearings and light weight, have an important bearing on operation because more cars of this type can be handled by the same locomotives than formerly, or the same numbers of cars can be started and gotten up to speed in less time.

The exteriors of the cars are finished in the familiar North Western yellow and green colors, with brown trucks. The interiors are pleasingly finished in two shades of tan with cream color ceilings. There are 43 large comfortable two-passenger reversible seats with outside arm rests, and three four-passenger longitudinal seats. The backs and cushions, upholstered in green Massachusetts mohair plush, are easily removable for cleaning or repair. Parcel racks are provided. For emergencies and when passengers may be required to stand, all seats are fitted with handholds, and there are metal straps over the longitudinal seats in the ends of the cars.

Twenty-six electric lights, staggered and placed directly over the seats, give excellent light for reading at night, and during the daytime 46 single brass sash windows, which are easily raised or lowered, permit the use of glazing wider and higher than when wooden frames are employed. From a maintenance standpoint these windows have the advantage that broken glass can be renewed without removing the sash from the frames.

The unusual standing space made available at each end of the car by the longitudinal seats will reduce crowding when a considerable number of passengers

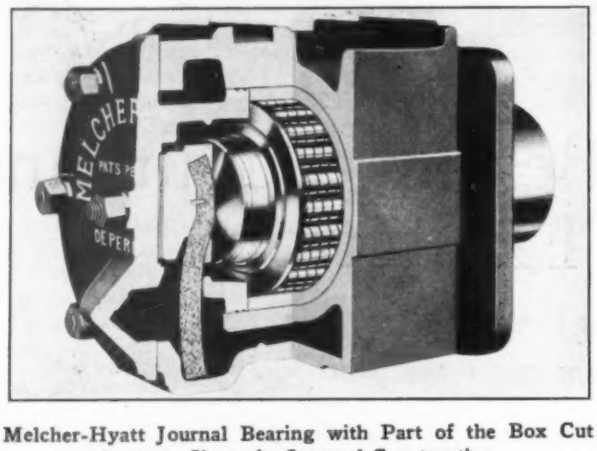


Floor Plan of New North Western Roller Bearing Suburban Coach

enter or leave the car at stations. Crowding will also tend to be avoided by the wide aisle, wide sliding, double-acting end doors and unusually wide steps which promote rapid loading and unloading of the car. This construction will also have the effect of saving time at station stops. Full vestibule platforms furnish complete protection from the weather. A saloon is provided at one end of each car.

Fireproof Construction Throughout

The new North Western suburban cars are of all-metal construction throughout, the only inflammable



Melcher-Hyatt Journal Bearing with Part of the Box Cut Away to Show the Internal Construction

material used, being the wood caps on the seat ends and the window sills, thus making the cars absolutely fireproof. The frame work of the car is of steel with cast steel combination bolsters and end castings, fitted with heavy vertical end-reinforcing members, making it practically impossible for the cars to telescope in case of wreck. The fastenings of the trucks to the body of the car are so arranged that even in case of derailment trucks will not become separated from the car, thus providing an additional safety feature to prevent telescoping.

The principal members of the skeleton side frame, including the side sill, side posts, belt rail, corner posts, side plate and their principal connections, are steel. The side posts are ⅛-in. copper bearing steel pressings. The underframe consists of a box girder center composed of two 12-in. 35-lb. channels reinforced at the bottom flanges with two 3½-in. by 3-in. by $\frac{7}{16}$-in. angles and a top cover plate 28 in. by ¼ in. Cross bearers, floor beams and body bolsters are of steel. The principal framing members of the vestibules and their connections, including the vestibule and posts, corner posts, end plate, ceiling plate and heat framing members, are of steel. The vestibule end plates are copper bearing steel.

The trucks consist of Commonwealth cast steel frames, bolsters and spring planks, with 33-in. forged steel and Simplex clasp brakes. Pullman type bolster locking center pins are used, also Wood's roller side bearings and American steel backed brake shoes. Roller bearings supplied by the Hyatt Roller Bearing Company, Newark, N. J., are contained in special "Melcher" type journal boxes developed jointly by the North Western and the Railway Motors Corporation, De Pere, Wis. One important feature of this design is that the outside dimensions of the box are such that any pair of truck wheels can be removed at any time or place and replaced by standard A. R. A. wheels, journal boxes and brasses.

Use of Aluminum Saves 5,700 Lb. per Car

The light car weight of 98,300 lbs. is secured by the extensive use of aluminum alloy plates to form the roof, letter-board, side sheets, false floor, interior finish and doors. No more difficulty was experienced in working and applying the aluminum than would have been the case with steel plates. The use of aluminum alloy for these parts saves approximately 5,700 lbs. per car, the alloy itself weighing 3,879 lbs. per car. A certain amount of car weight is also saved by using the elliptic or turtle back roof. The stereotyped form or curved hood was discarded in favor of a structure having roof framing members extending straight out to the vestibule face, it being felt that the resultant elimination of eccentric loads on the roof framing, due to impact, would provide a much stronger construction, weight for weight. The height of the car bodies is such as to provide vestibule side doors with sufficient clearance to permit future use of elevated station platforms if necessary.

Among the other important specialties used on these cars are Westinghouse schedule U. C. 1-16 brakes with U-12-B universal valve, Adams & Westlake basket racks, end door locks and hand brakes; Commonwealth body center plates and combined platform and body bolsters; American Brake Company slack adjusters; Waugh buffing devices, draft gears, coupler centering devices and hand straps; American Steel Foundries long shank passenger couplers; aluminum doors made by Pullman and the Morton Manufacturing Company; Morton vestibule step treads of the Kass type; Vapor system of car heating; Johns-Manville Masticoke laid on Acme Supply Company's Chanarch flooring, also on Pullman type metal flooring; lighting fixtures, switch-

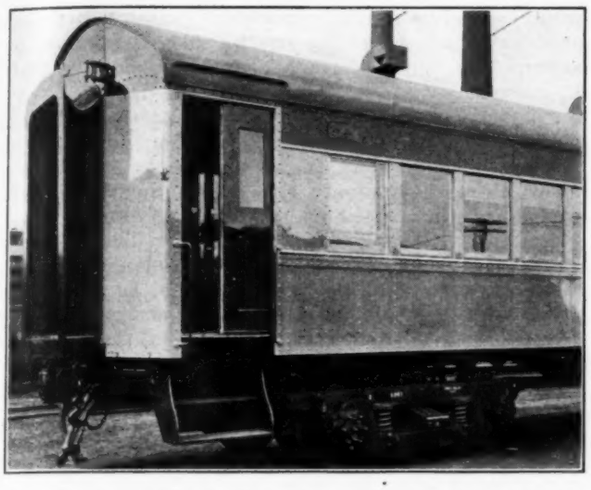
The Interior View Creates a Highly Favorable Impression

boards and equipment furnished by the Safety Car Heating & Lighting Co.; seats made by Haywood-Wakefield, Hale-Kilburn and the Coach & Car Equipment Corporation; upper buffer springs furnished by the Union Metal Products Company; Utility ventilators, also Mudge Peerless ventilators; Rex vestibule diaphragms and Zapon curtains furnished by the Curtain Supply Company; vestibule trap doors, also window sash and fixtures furnished by the O. M. Edwards Company; curtains made of du Pont fabrikoid.

The insulation of this car received careful attention

and consists, in the main, of two and three ply Salamander, either ½-in. or ¾-in. thick, applied as needed to the ceiling on the sides above and below the windows, inside of the side posts at the ends and on the floor.

The 20 combination passenger-baggage cars which are included in the equipment being built by the



Close-up Showing Car End and Truck Construction with Roller Bearing Journal Box

American Car & Foundry Company will be of similar design to the coaches except for a 20-ft. baggage compartment in the front end of each car.

Valuation Progress

A STATEMENT issued by Frederick H. Lee, secretary of the Presidents' Conference Committee on Valuation, under date of July 30 shows that 119 final valuations were issued in the six months ending June 30, 1927, making a total of 529 final valuations issued to date. Of these, 298 covered properties of carriers which did not protest against the tentative valuation and 81 were upon carriers which either filed a protest but failed to enter an appearance at the date assigned for hearing or presented no evidence or brief in support of their objections and claims. In about 25 additional cases, the tentative valuations have also become final by reason of the failure of the carriers to file a protest within the statutory period of 30 days after the service of the tentative valuation; and the commission is expected to make these reports final.

Since December 31, 1926, the commission has served 91 tentative valuations, of which 17 were on Class I carriers, making a total of 1,022 valuations served to date. On June 30, 1927, the commission had issued tentative valuations on all of the Class I carriers with the exception of the Baltimore & Ohio, the Erie, the Western Maryland, the Chicago, Milwaukee & St. Paul, the Chicago, Peoria & St. Louis, the Kansas City, Mexico & Orient, the Kansas City, Mexico & Orient of Texas and the Union Pacific.

During the six months ending December 31, 1926, $4,186,292 was expended in connection with the valuation work by Class I carriers reporting to the Presidents' Conference Committee, making a total amount so reported by these carriers for the period ending December 31, 1926 (a few smaller carriers not reporting), $95,941,450.

The expenditures of the Bureau of Valuation for the year ending June 30, 1927, were approximately $1,715,000, making a total expenditure by the Bureau, from the beginning of valuation work to June 30, 1927, with this approximation, of $29,971,027.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended August 20 amounted to 1,066,636 cars, a decrease of 14,867 cars as compared with the corresponding week of last year and of 13,359 cars as compared with 1925. Small increases were shown as compared with last year in the loading of grain and grain products and merchandise, and miscellaneous loading showed an increase of 8,371 cars, but all other commodity classifications showed decreases. Coal loading was 12,163 cars less than that for last year and ore loading showed a decrease of 11,752 cars. The Pocahontas and Southern districts showed gains as compared with last year but all other districts showed decreases. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

WEEK ENDED SATURDAY, AUGUST 20, 1927

Districts:	1927	1926	1925
Eastern	243,803	249,328	255,258
Allegheny	216,132	217,863	217,545
Pocahontas	62,951	58,656	55,660
Southern	152,129	149,395	151,220
Northwestern	163,958	168,516	166,441
Central Western	150,572	159,200	152,717
Southwestern	77,091	78,545	81,154
Total West. Dists.	391,621	406,261	400,312
Total all roads	1,066,636	1,081,503	1,079,995
Commodities:			
Grain and Grain Products	53,956	50,874	55,542
Live Stock	29,542	29,888	29,846
Coal	173,558	185,721	201,125
Coke	9,384	11,377	9,777
Forest Products	69,284	70,194	71,002
Ore	63,310	75,062	60,266
Mdse. L. C. L.	261,250	260,406	260,225
Miscellaneous	406,352	397,981	392,212
August 20	1,066,636	1,081,503	1,079,995
August 13	1,049,280	1,102,660	1,064,476
August 6	1,024,218	1,075,392	1,052,518
July 30	1,045,621	1,095,997	1,045,626
July 23	1,012,424	1,078,193	1,033,519
Cumulative total, 34 weeks	33,402,257	33,482,465	32,470,570

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended August 20 were 63,364 cars, a slight decrease from the previous week and an increase of 4,233 cars over the same week last year.

	Total for Canada			Cumulative totals to date	
	Aug. 20, 1927	Aug. 13, 1927	Aug. 21, 1926	1927	1926
Commodities					
Grain and grain products	3,539	3,788	3,459	220,333	210,861
Live stock	2,502	2,337	2,193	65,142	66,183
Coal	7,724	7,441	7,088	214,266	171,002
Coke	295	263	297	10,243	12,103
Lumber	4,364	4,420	3,910	124,326	120,746
Pulpwood	1,605	2,027	2,240	115,019	95,748
Pulp and paper	2,141	2,272	2,084	73,770	80,931
Other forest products	2,700	2,722	2,464	101,258	104,709
Ore	1,936	2,118	2,186	52,428	54,565
Merchandise, L. C. L.	18,488	18,263	17,292	560,072	529,860
Miscellaneous	18,070	17,739	15,918	469,093	453,003
Total cars loaded	63,364	63,390	59,131	2,005,950	1,899,711
Total cars received from connections	36,525	36,026	36,812	1,249,197	1,226,121

THE MANUFACTURE OF RIVETS and their application to steel structures such as cars, boilers, tanks, bridges and buildings, and the vital part which rivets play in such structures was portrayed in a moving picture exhibited to a group of Pittsburgh & Lake Erie railroad men at Pittsburgh, Pa., on August 26. This film has been shown on a number of similar occasions during the past few months by the Hanna Engineering Works, Chicago.

Accident Investigations, Second Quarter, 1927

THE Interstate Commerce Commission has issued Bulletin No. 32, containing its summary of train accident investigations for the three months ending with June 30, 1927, and including also the report on the derailment at Clayton, Calif., February 15 (*Railway Age*, May 7, p. 1402) which was not given in Bulletin No. 31. In the quarter here covered there were 10 collisions and 4 derailments. The four reports covering cases investigated in April were abstracted in the *Railway Age* of August 27, page 386; and the report on the accident at Westfield, N. Y., April 29, in the issue of July 9, page 68. The three cases in May and the six in June are abstracted below.

The following is the list of all the investigations in the quarter, as given in Bulletin No. 32*:

Accident Investigations, April, May, and June, 1927

1332.	Central of Georgia	Echeconnee, Ga.	April 3	C
1333.	Oklahoma City-Ada-Atoka	Konawa, Okla.	April 4	C
1334.	Missouri-Kansas-Texas	St. Paul, Kan.	April 8	D
1335.	Colorado & Southern	Uva., Wyo.	April 28	C
1336.	New York, Chic. & St. Louis	Westfield, N. Y.	April 29	C
1337.	Louisville & Nashville	Sulphur, Ky.	May 18	D
1338.	Atchison, Topeka & Santa Fe	Flagstaff, Ariz.	May 23	C
1339.	Virginian	Ingleside, W. Va.	May 24	C
1340.	Southern Pacific	Lorine, Tex.	June 6	D
1341.	Lehigh Valley	Dryden, N. Y.	June 12	D
1342.	Southern	Peak, Tenn.	June 14	C
1343.	New York Central	Meigs, Ohio	June 20	C
1344.	Dayton & Troy Electric	Dayton, Ohio	June 25	C
1345.	New York Central	Lockport, N. Y.	June 30	C

Abstract of Reports

Louisville & Nashville, Sulphur, Ky., May 18.—Northbound freight train No. 72, consisting of locomotive No. 1883 with 36 cars and a caboose, was derailed on a curve while moving at from 30 to 50 miles an hour, and the locomotive was overturned; the first 20 cars were wrecked. The report quotes officers of the road who thought the track was in good condition and another officer (of the mechanical department) who thought the trouble was a broken rail; but the conclusion is that the derailment was caused by excessive speed on a sharp curve, coupled with defective track, there being a lack of ballast. The government inspectors found unsatisfactory track conditions at other points on the division.

Atchison, Topeka & Santa Fe, Flagstaff, Ariz., May 23, 7:08 a. m.—Eastbound passenger train No. 4, unexpectedly stopped because of an unexplained automatic application of the brakes in emergency, was run into at the rear by the second section of the same train, moving at good speed; and the standing train was driven ahead about 50 ft. The rear car was telescoped for about 12 feet and many other cars were somewhat damaged. Two passengers were killed and 128 passengers and 37 employees were injured. The second train had run past a caution signal three miles back and a stop signal 150 ft. back; also the flagman of the leading train says that he went back about 1000 ft.; and he put down torpedoes before returning to his train. He was recalled by whistle after about five or six minutes, the engineman and trainmen having been unable to find anything wrong with the air brakes. The inspector's summary of evidence fills six pages but there is no clear conclusion as to how the engineman came to disregard the signals. For four or five blocks the engineman had seen caution signals, and in some cases had passed caution signals; and the principal conclusion of the report is that in a case like that, where the engineman has good evidence that the train ahead is not far distant, there is no possible excuse for failing to run with special caution. Neither of the two enginemen questioned in this investigation had been examined on the book of rules within the past 14 years and the flagman had never been examined. The engineman at fault appeared not to have a very definite idea of what the rules required when running under a caution signal indication. Failure to examine employees sufficiently and seasonably on the rules is a thing, the correction of which, says Mr. Borland, should be taken up immediately.

Virginian, Ingleside, W. Va., May 24.—Westbound passenger train No. 3, moving at about 20 miles an hour, collided with an eastbound freight traveling at about 14 miles an hour; and the engineman and the fireman of the passenger train were killed; 19 passengers and 10 employees were injured. The passenger train had passed Ingleside station in violation of a dispatcher's order requiring that the freight be met at that point; and the conductor, engineman and brakeman are held responsible. Both the conductor and the brakeman clearly understood the order but both overlooked it completely, after the train had departed from Norcross, where the order was received. The evidence indicates that the dead engineman had received the order and placed it on a hook in the cab, but the fireman, who was taking water when the order was delivered, is believed probably not to have been acquainted with the contents of the order. The conductor said that among his passengers were a sick woman and a crippled man, both of whom required considerable attention, and that this situation may have caused him to overlook the order.

Southern Pacific, Lorine, Tex., June 6.—Freight train No. 210, moving at about 15 miles an hour, was derailed and the locomotive and first car were overturned, causing the death of the fireman. The locomotive was of the 0-6-0 type, weighing 145,000 lb. with a wheel base of 11 ft. and the inspector believes that the derailment was due to excessive speed. The statements of the members of the crew were so vague and contradictory that they were held to be of no value in determining the cause of the derailment.

Lehigh Valley, Dryden, N. Y., June 12.—Westbound passenger train No. 293, moving at about 35 miles an hour, was derailed after entering a side track over a misplaced facing point switch and the locomotive was overturned. The engineman and fireman were killed. The switch had been tampered with by a boy of 13 years. The boy claimed that he found the switch unlocked and the inspector endeavored to find out if any employee had left it in that condition, but learned nothing.

Southern, Peak, Tenn., June 14.—Westbound freight train No. 67 moving slowly out of a side track was run into by following freight train No. 81, moving on the main track at about 18 miles an hour, and the locomotive of No. 81 was overturned. Many cars were wrecked and the engineman, fireman and one brakeman of No. 81 were killed. The conductor of No. 67 is held responsible for the collision, having moved his train forward without taking any measures to flag against No. 81. There was a telephone booth near by from which he could have asked for information about following trains. This conductor had on the previous evening attended an examination on train rules in which the subject of providing flag protection in a situation like this was under discussion. No. 81, according to rule, should have approached with caution, and it is believed that if the engineman had been keeping a better lookout he could have seen the stop-signals which were given, in time to have brought his train to a stop.

New York Central, Meigs, Ohio, June 20, 4.25 a. m.

* For bulletin No. 31, see *Railway Age* August 20, page 347.

—A southbound freight train, extra 9712, moving in a dense fog, ran over a misplaced switch and collided with northbound freight No. 81, third section, which was standing at the end of the double track. The fireman of the northbound train was killed and three other employees were injured. Responsibility for the switch being in the wrong position is laid upon the operator at the station, whose office was only 20 ft. away. This switch, at the end of the double track, was not interlocked with the signal and the southbound train had a clear indication 200 ft. north of the switch; but the switch light showed red. The engineman said that he did not notice the position of the switch nor was he looking for it, having received the clear block signal indication. The report does not blame the engineman for failure to see the switch or the switch light. The signals governing northbound movements are connected with the switches but those for southbound movements are not connected.

Dayton & Troy Electric, Dayton, Ohio, June 25.—Northbound passenger train No. 204, consisting of one car (motor No. 250), ran past Idlewind, at the end of double track, where, according to time table, it should have met southbound train No. 75, and collided with 75 while running at good speed. The southbound car had been brought almost to a stand-still. Both the cars were wrecked and the motorman of the southbound car was killed; also three passengers were killed and 35 passengers and 4 employees were injured. Both the conductor and the motorman of 204 forgot the schedule of 75. The motorman had been running this train less than a week, and during that time he had always met No. 75 on the double track before reaching Idlewild. On leaving the double track he had reduced speed slightly, because of an automobile seen on a crossing ahead, and he thinks that he had brought it down to 10 miles an hour before colliding.

New York Central, Lockport, N. Y., June 30.—Eastbound passenger train No. 48, moving at 15 or 20 miles an hour, collided with a work train, overturning the passenger engine and doing much other damage; two passengers and three employees injured. The work train had left a flagman some distance west to protect it against all trains but this man had left his flag sticking up in a timber and he was on the north side of the track when the passenger train passed; he had a hazy understanding of the rules and could not say what instructions had been given to him by his conductor. The flagman is held primarily responsible for the collision, but his conductor is blamed for not properly instructing the flagman and for not obtaining permission from the manual block-signalman to use the main track; and the dispatcher is blamed for not puting the conductor in communication with the signalman over the telephone. The conductor of the work train had telephoned the signalman about 7 a. m. to get leave to use the main track, but he had spoken over a wire connected to a number of local offices and was not positive that it was the signalman with whom he had talked. A four-page summary of evidence contains many instances of loose practice.

Pennsylvania Dining Car School

WITH the idea of attaining a more perfect service and cuisine that will appeal to the appetite of the most jaded traveler, the Pennsylvania has opened a training school and experimental kitchen for the instruction of dining car stewards, cooks and waiters, at its dining car commissary at Columbus, Ohio.

The new school includes a reproduction, both in space and equipment, of the latest type dining car, built into and forming a part of the commissary building. Every detail of range and boiler, pantry, dinning room and tables has been reproduced in the commissary, even the connecting aisles and corridors being laid out to conform exactly with the standard dining car plan. With this equipment it is possible to carry on demonstrations and conduct classes under conditions similar to those prevailing in cooking and serving meals on the road.

Expert chefs have been placed in charge of instruction in the training school kitchen. Every feature of the cooking art is taught with thoroughness, ranging from the preparation of cuts of meats for roasting to the creation of delicate sauces and salads.

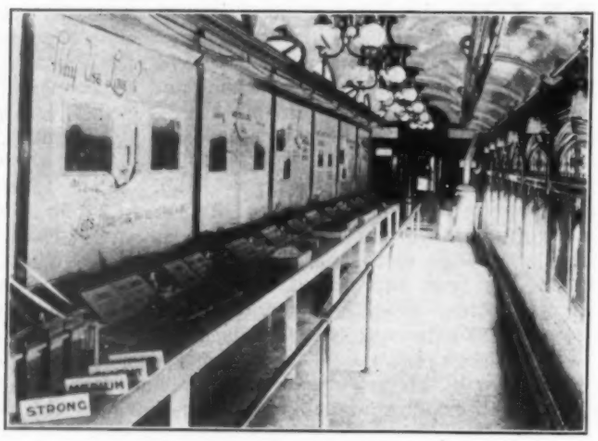
In the dining room of the school an instructing waiter has been assigned the duty of training and coaching waiters in proper methods of serving every item of the menus, as well as in courtesy, personal appearance, care of silver and linens and kindred subjects.

In the experimental kitchen, tests will be made constantly to develop improved methods in the preparation of food and new and better dishes and combinations of dishes. As fast as these new methods and dishes are perfected, they will be embodied in the course of instruction given dining car crews.

Instructing Chefs Demonstrating at Dining Car School

Burlington Soils Special's Tour

THE soil testing train which the Chicago, Burlington & Quincy recently operated in northeast Missouri and southern Iowa, in conjunction with the agricultural colleges of these states was visited by 18,136 people, a total of 46 stops having been made. A laboratory car which contained all necessary equipment for making a thorough analysis of soils was one of the features of the train. In Missouri, farmers brought in 797 soil samples and in Iowa, 884 samples, all of which were tested in the presence of farmers. In one car of the train crops and soils specialists held individual conferences with farmers on soil, drainage and seeding problems. Contracts were signed with 88



Interior of One of the Exhibit Cars

farmers in Missouri for the establishment of legume demonstrations.

Some immediate results of this campaign have already been noted. Seven carloads of lime were ordered at one point during the first week following the operation of the train. At another point, 636 tons of limestone have been sold to farmers.

The operation of this train was the result of a survey made this spring when farmers and business men reported that the sour, depleted condition of the soil in these sections was making it almost impossible for farmers to grow the clovers and similar legume crops necessary as feeds and soil builders in a well-ordered, profitable farming system.

A Railway Bridge in Chile

Looking Backward

Fifty Years Ago

The new line of the Cincinnati Southern (now a part of the Cincinnati, New Orleans & Texas Pacific) has been completed from Cincinnati to Somerset, Ky., 137 miles, grading has been finished on the remaining 174 miles of line to Chattanooga, Tenn., and it is expected that track laying and bridging on this section will be rushed to early completion.—*Chicago Railway Review,* September 1, 1877.

The Texas & Pacific Company has forfeited its immense land grant in Texas because of failure to construct a line from Ft. Worth, Tex., to Weatherford in pursuance of the terms of the charter. It is expected that the state government will now designate the T. & P. land as a portion of the 3,000,000 acres set aside by the constitution to make possible the construction of a new capitol at Austin, Texas.—*Railroad Gazette,* August 31, 1877.

Twenty-Five Years Ago

Through a prize competition the Rock Island and the Southern Pacific have named the new Chicago-San Francisco train, which is to go into service on November 1, the "Golden State Limited." —*Railway Age,* September 5, 1902.

Western railroads are involved in a rate disturbance which is affecting the rates on iron articles between Chicago and Denver. Between September 5 and December 31 iron articles designated as fifth class whose ordinary rate is 77 cents will be carried for a rate of 27 cents.—*Railway Age,* September 5, 1902.

The Monongahela, Allegheny & Ohio was chartered on August 21 to build a road 100 yd. long with a view to preventing the Wabash from reaching the South Side mill district of Pittsburgh. The new line will traverse property lying between the Pittsburgh, Cincinnati, Chicago & St. Louis and a high cliff on the south and the Pittsburgh & Lake Erie on the north.—*Railroad Gazette,* September 5, 1902.

Concrete-steel ties of original design will be displayed by the Lake Shore & Michigan Southern at the Roadmasters' and Maintenance of Way Association meeting at Milwaukee. The tie consists of a piece of old steel rail, turned base upward with a concrete body moulded to the head. The base of the old rail forms the top face of the tie and provides seats to which track rails are fastened by means of clips.—*Railway and Engineering Review,* September 6, 1902.

Ten Years Ago

J. L. Beven, trainmaster on the Illinois Central at McComb, Miss., has been promoted to terminal superintendent at New Orleans, La.—*Railway Age Gazette,* August 31, 1917.

An agreement providing, among other things, an eight-hour day for most of the men involved was signed on August 24 as a final settlement of the wage controversy between the southeastern railways and their shop employees. The principal terms of the settlement were decided upon by Secretary Wilson of the Department of Labor.—*Railway Age Gazette,* August 31, 1917.

A record of 694 cars received in New England within the past few weeks is used by the manager of the Transportation bureau of the Boston Chamber of Commerce to place the large share of blame for the car shortage on the railroads. The average time in transit of those cars was 34.7 days. From Mississippi river crossings the average time was 69.4 days and from Minneapolis 57.5 days.—*Railway Age Gazette,* August 31, 1917.

Communications and Books

To Educate Enginemen

WASHINGTON, D. C.

TO THE EDITOR:

The letter in the *Railway Age* of August 20, page 349, advocating a rule to require enginemen to whistle for street crossings when very close to the crossing is of particular and unusual interest, because it shows *two* experts on this subject who are in agreement. The depressing thing about the crossing-whistle agitation is that no two writers have agreed with each other as to what is the best practice.

I note that the earlier letter referred to by Mr. Phillips (*Railway Age*, July 23, page 156) advocates giving the engineman full discretion about blowing the whistle. This seems eminently reasonable; he must have some discretion; why not all discretion? Limit him as little as possible. To try to eliminate all necessity of exercising discretion, by telling him to whistle nine seconds, or 13 seconds, or for half a mile, is simply an outrage on all the unnumbered "innocent bystanders" (residents) who must hear the excessive noise.

These letters which you have printed lead me to hark back to the meeting of the Railroad Section of the National Safety Council, at Buffalo, N. Y., four years ago, where whistling was discussed in connection with an address advocating the use of a mechanical device to blow the whistle; a device which would regulate the length of each blast, making the whistling always uniform. If I remember correctly a number of locomotive enginemen spoke in opposition to any automatic arrangement, their argument being that it would interfere with the runner's freedom always to use his own best judgment. That discussion never came to any useful result; but it would seem as though every engineman ought to welcome an automatic signaling device. Can he not see that the lack of it is the cause of much unnecessary wear and tear on his nerves? It was mentioned at Buffalo that on a 200-mile run an engineman has to blow the whistle 800 times! That was on a calculation of one crossing to each mile of road—a very common proportion. But the 799 repetitions do not constitute the worst feature. When the engineman aims to fill up nine seconds with each four blasts, or to cover a quarter-mile while making the four, he has to devote too much thought to the measurement of the time. I think every engineman—even those who spoke at Buffalo—will on reflection agree with me on this point. It may be said that the seasoned engineer does this whistling automatically; that is, without definite mental effort. But this is only partly true. He is being frequently prodded on his duty never to miss seeing every automobile at the earliest possible moment, and always to sound the whistle too much rather than too little, so as to save careless motorists' lives and to ward off lawsuits. His mind is in tension, to do everything just right, and to be able afterward to testify in court that he had done so.

Contrast this constant burden on the engineman's mind with the simple and easy conditions that prevail when using an automatic device. By pressing a button—as in making one dot with a telegraph key—the engineman causes the sounding of all four blasts in perfectly correct time and always exactly the same. If the apparatus is set to blow these four blasts in three seconds, the whole operation can be dismissed from the engineman's mind in reasonable time. (Very often an engineman with the right temperament takes only two seconds—and to the satisfaction of everybody, except perhaps the legal department.) If the signal has to be repeated, or even to be sounded three times (3x4) the engineman still has the great bulk of his time over that quarter mile free for other thoughts or duties.

And with an adequate training program, the regular use of the three-second signal can be enforced without any automatic device. Many enginemen do this regularly already. The problem is to educate the 75 to 90 per cent of the men who are careless. Educate them so that they will willingly take a lesson from the 10 per cent who know how.

One of the best things that the American Railway Association could do would be to appoint a strong committee to deal with this subject; to promulgate an effective scheme for training enginemen whose ears lack education. To be strong and effective, such a committee should be composed of superintendents or general managers who have had experience as Morse telegraphers (I assume that a railroad officer who has seen telegraph service is what they term a "first class operator"). Such men would understand the difference between good whistling and bad or second best whistling. With a sufficient equipment of buzzers in enginemen's headquarters great progress might be made within a short time.

V. W. R.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Engines and Water Wheels, Locomotives and Aircraft. Abstract from Census of Manufacturers: 1925, being compiled by U. S. Bureau of the Census. "Locomotives" p. 13-14 includes summary of industry for 1914-1925, and statistics showing class, i. e. steam, electric, internal-combustion, number and value, 1919-1925. 17 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., 5 cents.

Moral Aspects of Railroad Valuation, by Rev. Michael J. Larkin. Thesis at Catholic University, 1927, discussing valuation from a somwhat unusual point of view. Includes bibliography. 105 p. Available from Library, Catholic University of America, Washington, D. C., $1.

A Preliminary Abstract of Statistics of Common Carriers for the Year Ended December 31, 1926, compiled by Bureau of Statistics, Interstate Commerce Commission. Herein can be found for the period noted the number of stockholders, the amount of capital stock, the number of carloads, or tons, as one prefers, of specified commodities, the miles of first, second, third, fourth and other main tracks and yards and sidings, the number of employes —in short, the answers to any number of questions asked about railroad details. 28 p. Pub. by Govt. Print. Off., Washington, D. C., 15 cents.

Steam and Electric Railroad Cars and Railroad Repair Shops. Another abstract from Census of Manufacturers; 1925 of special interest to railroaders, in which one discovers that Pennsylvania has the greatest number of railroad repair shops and Vermont the least, in the General statistics by States, p. 15-16, while the figures on wages, costs, value added by manufacture, and output are interesting, 21 p. Pub. by U. S. Govt, Print. Off,, Washington, D. C., 5 cents.

Periodical Articles

Boiler-Feedwater Problems and Methods of Treatment, by Sheppard T. Powell. Describes methods used in treatment of boiler feedwater for various purposes. Mechanical Engineering, September, 1927, p. 1009-1012.

Double Entry, by Merle Thorpe. Government book-keeping particularly as it may affect railways in valuation questions. Collier's, August 27, 1927, p. 10, 34.

A Hundred Years of Engine and Rail, by Edward Hungerford. A survey of some of the outstanding developments with mention of the Baltimore & Ohio's plans for celebration this fall. Nation's Business, September, 1927, p. 25-27.

Reports of Tie Conditions for First Half of 1927. Summaries helpful to users of ties, while the report from the South Central District will also be helpful to those studying economic effects of the Mississippi floods. Cross Tie Bulletin, August 1927, p. 1-2, 4-6.

Odds and Ends of Railroading

The Prime Minister and the Car Inspector

When Stanley Baldwin, Premier of Great Britain, was on his recent visit in Canada the accompanying photograph was taken showing him in conversation with a Canadian National Car inspector, D. A. McKay. The conversation, while not extraordinary, at least showed a real interest in railroading on the part of the Prime Minister.

As McKay swung around the end of the car, hammer in hand,

Mr. Baldwin asked: "Did you examine the wheels of my car?"

To which McKay answered: "Yes, sir, they are all right."

Mr. Baldwin continued: "What do they call your work in this country? In England they call them wheel tappers."

To which McKay replied: "We are called inspectors in this country."

Mr. Baldwin: "Your hammer is much longer than the one used in our country."

Mr. Baldwin terminated the conversation as the train drew out by saying: "Yours is a very responsible work."

An Early Railway in Pennsylvania

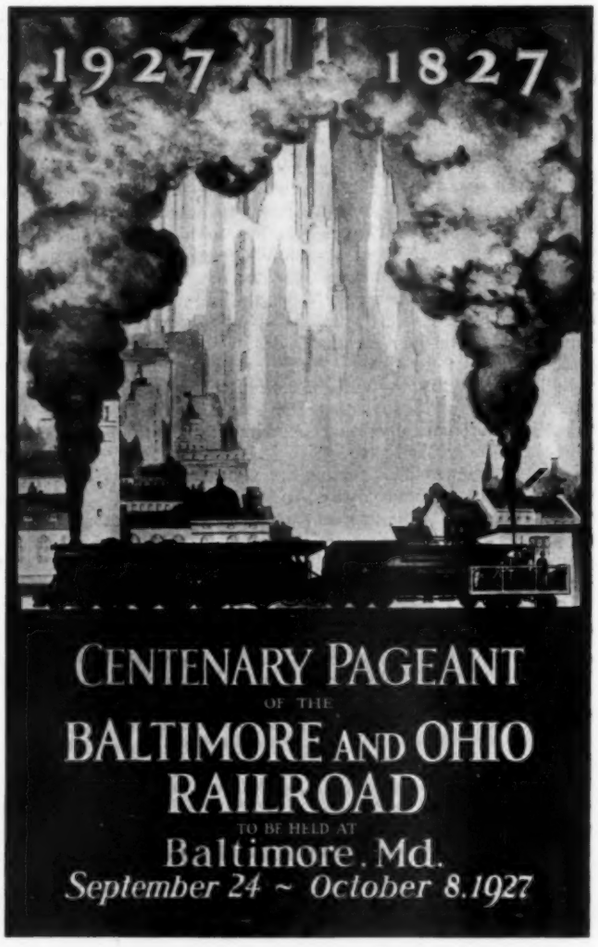
One of the important activities of the Blair County (Pa.) Historical Association, says the Altoona Tribune, is the undertaking of preliminary steps toward the erection of a memorial to the Old Portage Railroad. The Pennsylvania legislature has appropriated $10,000 for this purpose. This railroad was authorized in 1831 and was placed in operation in 1834. It extended from Hollidaysburg to Johnstown, 37 miles, and consisted of 10 inclined planes connected with short stretches of level track. Its purpose was to provide a connection for canal boats between tributaries of the Ohio River and the system of canals and navigable streams terminating at Hollidaysburg which gave access to the Atlantic seaboard. It was Pennsylvania's answer to New York's competition with the old Erie canal.

Another Railroad Family

The Louisville & Nashville enters the railway family competition. Its entry is the Jones family, with a combined service of 187 years. Sam Jones, a trackman, rendered 40 years' service before he retired. He has three sons and a grandson in the service, all of them track foremen on one division. Will Jones has a service record of 43 years, Enoch P. Jones, 30 years and Charles Jones, 29 years, while Arthur Jones, the grandson, has been in service 18 years. Another son, Isaac Jones, was in the service of the L. & N. for 27 years.

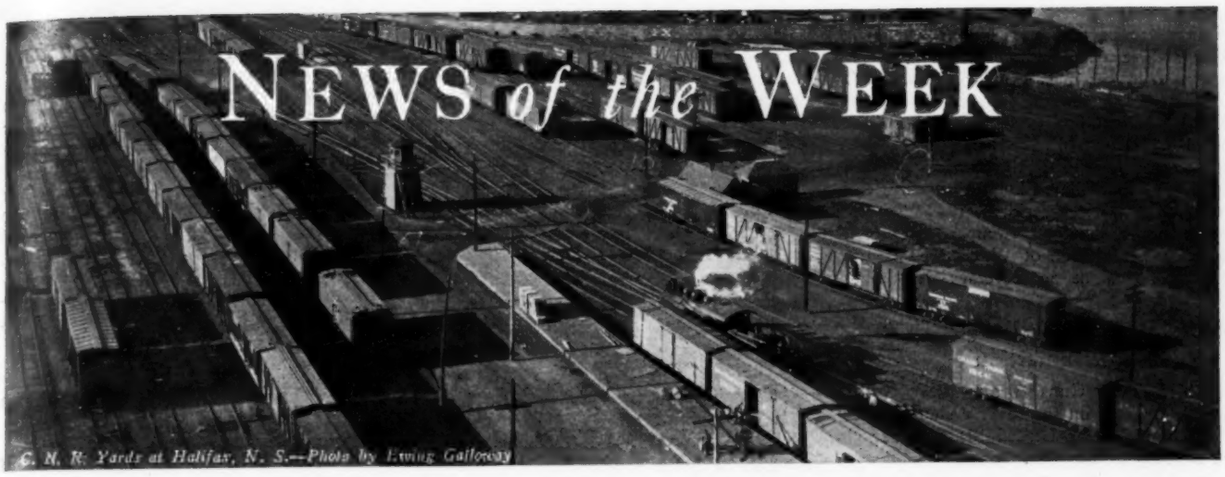
Only 99 Years Ago

Someone has dug up the records of the Lancaster, Ohio, school board back in 1828. In these records there is an account of a proposed debate as to whether railroads were practical or not. Permission was asked to hold the debate in the school house and the minutes of the school board meeting ran as follows: "You are welcome to use the school room to debate all proper questions in, but such things as railroads and telegraphs are impossibilities and rank infidelity. There is nothing in the word of God about them. If God had designed that His intelligent creatures should travel at the frightful speed of 15 miles an hour by steam, He would have foretold it through His holy prophets. It is a device of Satan to lead immortal souls down to hell."



One of a Series of Four Posters in Color Issued by the B. & O. to Announce Its Centenary Celebration

NEWS of the WEEK



C. N. R. Yards at Halifax, N. S.—Photo by Irving Galloway

THE INTERSTATE COMMERCE COMMISSION has changed from September 14 to September 12 the date of the hearing on the complaint of the Wisconsin Railroad Commission asking it to require railroads to equip their locomotives with cab curtains, assigned for Albany, N. Y., before Special Examiner Rogers.

THE MISSOURI-KANSAS-TEXAS is to give a veteran's gold lapel button to each of the 887 employees who have been in service with the company for 25 years or more, the presentations to be made at the annual field day and athletic meet to be held in Parsons, Kan., on September 5. Of these employees, 11 have been with the company over 50 years.

F. J. SCARR, of the Scarr Transportation Service, New York, and formerly supervisor of motor service of the Pennsylvania, will give a course in Commercial Highway Transportation during the coming fall term at Columbia University. Both motor trucks and motor coaches will be discussed, as will their uses in co-ordination and in competition with the railways.

DR. JULIUS H. PARMELEE, director of the Bureau of Railway Economics, is representing the International Chamber of Commerce at the Third General Conference on Communications and Transit now being held at Geneva under the direction of the League of Nations. The government of the United States is also participating in the conference through Hugh R. Wilson, American Minister to Switzerland. His technical advisers are Chauncy G. Parker, counsel for the United States Shipping Board, Norman F. Titus, chief of the Transportation Division of the Department of Commerce, and William H. Bonneville, of the Interstate Commerce Commission.

Locomotive Historical Bulletin No. 14

The Railway & Locomotive Historical Society (Boston) has issued its bulletin No. 14, closely following No. 13. This bulletin contains a brief note on the dedication of the new buildings recently provided by George F. Baker for the Graduate School of Business Administration at Harvard University, Cambridge, in one of which there is to be a room set apart for the use of the Railway & Locomotive Historical Society.

The principal articles in this bulletin deal with early locomotives on the railways of Scotland, the history of the Grand Trunk Railway of Canada, and the history of the Schenectady Locomotive Works. One of the Schenectady locomotives pictured is a ten-wheeler (4-6-0) with inside cylinders.

Freight by Airplane at a Dollar a Pound

The American Railway Express has announced its "Air Express Tariff No. 1" and transportation by this means between New York and Chicago was begun on September 1. The rate will be 25 cents for each quarter pound, with a minimum charge per package of $1. Shipments will be taken up to 200 lb. each, but no single shipment valued at more than $5,000. Explosives, live freight, acids and articles liable to damage from shock will be refused. Excess charges will be imposed on any package occupying more than 50 cu. in. (say 5 by 4 by 2½) to the quarter pound.

The service is to extend to the Pacific Coast and to Dallas, Texas; and the tariff names in all 26 cities at which stops will be made. From New York to San Francisco the rate is 65 cents; Boston to San Francisco, 75 cents and other distances in proportion. The principal terminals are: New York, Boston, Chicago, Dallas, Omaha, San Francisco.

Western Firemen's Wages to Be Arbitrated

The Brotherhood of Locomotive Firemen & Enginemen has demanded an increase of pay on the railroads west of Chicago, the number of men represented being estimated by the brotherhood as 50,000, including hostlers. Following failure to come to an agreement, the railroads and the Brotherhood have called upon the United States Meditation Board to choose two neutral members and an arbitration board will be organized.

The Brotherhood of Railroad and Steamship Clerks, Freight Handlers and Station Employees has requested an increase of 15 cents an hour in the rates of pay on the Chicago & North Western, and the demand is to be heard by a board of arbitration which will sit on September 7 or September 9. The members of this board are: Ralph E. Heilman, dean of the school of commerce of Northwestern University; Victor S. Clark, editor of the Living Age, Boston; William Walliser, vice-president, and C. W. Westbrook, assistant general auditor of the North Western; George N. Eastty, assistant general auditor and George Harrison, vice-grand-president, of the brotherhood.

Orient Authorized to Drill for Oil

Permits have been granted by the Railroad Commission of Texas to the Kansas City, Mexico & Orient Railroad to drill six oil wells upon its right of way in the Upton county field, according to a dispatch to the Wall Street Journal. Similar permits may be granted the Kansas City, Mexico & Orient to drill wells upon its right of way in the Big Lake field of Reagan county. The road is handling a large traffic in oil and oil field supplies.

The Railroad Commission, it is pointed out, has ample precedents in the matter of granting permits for drilling oil wells upon railroad rights-of-way, similar authority having been granted in the past to several Texas roads.

Car and Supply Men Elect New Officers

The Railway Car Department Officers' Association at its annual convention held at the Hotel Sherman, Chicago, August 23, 24 and 25, elected the following new officers: President, E. R. Campbell, chief interchange inspector, St. Paul, Minn.; first vice-president, M. E. Fitzgerald, general car inspector, Chicago & Eastern Illinois, Danville, Ill.; second vice-president, F. A. Staff, supervisor of reclamation, Chesapeake & Ohio, Covington, Ky., and third vice-president, M. P. Cole, general car inspector, Boston & Maine, Ayer, Mass. A. S. Sternberg, master car builder of the Belt Railroad of Chicago, was re-elected secretary-treasurer.

The new officers of the Railway Car

Department Officers' Supply Men's Association are as follows: President, J. W. Fogg, MacLean Fogg Lock Nut Company, Chicago; first vice-president, J. T. Cralley, Union Metal Products Company, Chicago; second vice-president, Charles F. Weil, American Brake Shoe & Foundry Company, Chicago; third vice-president, E. H. Hall, Millar Clinch Company, Chicago; fourth vice-president, K. M. Hamilton, the Bettendorf Company, Chicago. Bradley S. Johnson of W. H. Miner, Inc., Chicago, remains as secretary-treasurer.

Buffalo Nickel Indian at B. & O. Exhibition

Chief Two Guns White Calf, whose profile appears on the reverse side of every Buffalo nickel of United States currency, is coming to the Baltimore & Ohio Centenary Exhibition and Pageant, September 24 to October 8, accompanied by a score or more of the Piegan and Blood tribes of the Blackfoot Nation of Indians, the railroad announces. The trip will be the longest they have taken since the San Francisco Exposition in 1915. They will travel in two historic coaches drawn by the old original "William Crooks" locomotive, the first operated west of the Mississippi river, in the State of Minnesota, furnished by the Great Northern Railway, with the Indians, as its contribution to the exhibition and pageant.

Garbed in their tribal costumes, and bringing along with them their tepees and horse and dog "travois," one of the earliest known and crudest of American transport methods, as well as two of the primitive "bull boats" made of hides and several of the famous old Red River ox-carts, they, with their antique modes of conveyance, will be in the pre-railroad section of the historic pageant, and the train on which they will go to Baltimore will also be in the procession among the old-timers of the Baltimore & Ohio and other railroads.

The schedule of the little "William Crooks" train, bearing the Indians, will average about 200 miles a day. It will first proceed to Chicago and thence to Baltimore, making intermediate stops at various places.

Reasons for Hudson Bay Railway's Longer Route

Strongly recommending Fort Churchill, instead of Port Nelson, as the port terminal of the Hudson Bay Railway Frederick Palmer, British engineer, in a preliminary report issued this week by the Minister of Railways and Canals at Ottawa, gives his reasons for the recommendation following the recent trip of inspection of the two proposed terminals by an official party from Ottawa. Mr. Palmer is now on his way home to London, Eng., where he will prepare a complete and final report and submit it to the Canadian government this fall. Supplementing Mr. Palmer's reasons Mr. Dunning this week stated that the cost of providing harbor accommodation at Churchill would be only $7,000,000 while at Nelson it would be $21,000,000.

Mr. Palmer's conclusions are, in part, as follows:

"That Churchill is undoubtedly the port to be selected as affording a real harbor in which shipping facilities can be provided in calm water, protected from all storms by surrounding rocky cliffs."

"The estimated costs of corresponding accommodation at Nelson and Churchill disclose marked advantage in favor of the latter, the figures showing that, including interest during the period of construction, the cost at Churchill will be less than one-third of what is required to complete Nelson. Even after adding the cost of the extra 87 miles of railway to Churchill, the cost of this place will be only about one-half of the Nelson port estimate.

"The time for completion of the works at Churchill, viz.: Three years, is one-half of the time needed to carry out the Nelson Works.

"That Churchill provides a completely sheltered port for shipping from the moment the entrance is passed while at Nelson no shelter can be confidently reckoned upon until the wharf is reached, and then only by the provision of breakwaters.

"That the annual charges, including interest, operation and maintenance would be about a million dollars greater at Nelson than at Churchill."

Fatal Derailment at Gallitzin, Pa.

Eastbound passenger train No. 28 of the Pennsylvania Railroad, the Broadway Limited, was derailed on the steep descending grade about 1½ miles east of Gallitzin, Pa., at 2:32 a. m. on Monday, August 29, and the engineman and fireman of the leading locomotive were killed. The engineman and fireman of the second locomotive were seriously injured and the conductor, baggageman and one brakemen slightly injured. There were about 120 passengers on the train, all of whom are reported as having escaped serious injury.

Officers of the road made careful examination of the wreck and surroundings, but reported that no cause for the derailment could be discovered.

The engineman of the second engine said that the speed at the time of derailment was within the prescribed limit on this section, which is 35 miles an hour. There was a dense fog at the time.

The train consisted of two locomotives, a club car and 9 sleeping cars. It was running on the southernmost track, track No. 1 at a point where the line turned to the right over a curve of about 8 deg. The leading engine turned to the left and lodged across all four tracks. The second engine and the club car fell to the foot of a high bank, both being overturned. In the club car there were two persons—a passenger and a porter. Engineman Edward Hunter of the overturned locomotive, though seriously injured, clambered up the bank, got a lantern and flagged a westbound freight. The car next behind the club car lodged with half its body hanging over the bank. The five rear cars were not derailed.

On the same night at Wilmore, Pa., 14 miles west of Gallitzin, the westbound Broadway Limited, No. 29, was derailed by a car door which had fallen to the track from a freight train, but no casualties were reported.

The curve east of Gallitzin, where No. 28 was derailed was the scene of a similar accident on April 27, 1921, and again on December 19, 1925; and according to the Altoona Mirror, Conductor J. W. Simpson, of No. 28, was in charge of the train on both of those occasions. The accident in 1921 was to No. 64 and two employees were killed. The train wrecked in 1925 was No. 32; one passenger killed, 33 injured. Both of these cases were investigated by the Interstate Commerce Commission and the cause reported as excessive speed.

Early History of the Northern Central

George D. Ogden, traffic manager of the Eastern Region of the Pennsylvania, speaking before the Rotary Club of York, Pa., on August 31, prefaced his address on the general railroad and economic situation by reference to the fact that the division of the Pennsylvania which runs through York, formerly the Northern Central, is now almost 100 years old. In fact, the Baltimore & Susquehanna, which was the name of this road at first, was incorporated in the State of Maryland on February 13, 1828; and the "cornerstone," with ceremonies participated in by Charles Carroll of Carrollton, the same as were the Baltimore & Ohio ceremonies, was laid in the outskirts of the city of Baltimore on August 8, 1829, the same day on which the Stourbridge Lion, the first locomotive to turn a wheel on American railroad, made its historic trip at Honesdale, Pa.

The track of the Northern Central reached York in August, 1838. The first locomotive, brought from England in 1832, was run at speeds of 45 and 50 miles an hour on its experimental run.

The City of York, on October 15 next, plans to celebrate the 150th anniversary of the meeting in that city of the Continental Congress, and the railroad company is to participate in the festivities. Defining his company as a "neighborly railroad," Mr. Ogden continued:

"A railroad is a component part of the utilities that work for the common good. It can stand apart, regarded by the people as a great money-making organization or it can win a position in public esteem which makes it seem like a friend. To make friends the spirit of friendliness must be registered. Great importance lies in the fact that in being located on the lines of the Pennsylvania Railroad, York has direct access to a transportation system which with its own rails reaches a territory embracing half the population of the United States, a statement which could not be made of any other railroad. This territory doubtless embraces over three-quarters of the entire national wealth and population. It also embraces the greatest consuming centers of the country."

Discussing transportation generally the speaker said:

"The greatest contribution made by the railroads to increased prosperity in recent years has not been either in the form of lower rates or higher wages, but in an increase in the efficiency of service, which

can only be described as marvelous and which has certainly been unparallelled in transportation history. . . . In the opinion of our ablest economists hand to mouth buying, by keeping down the inventories of unsold goods and steadying the rate of industrial production, has been the greatest balance wheel that our trade and commerce have ever known. As a consequence, it has been the most important factor in creating and making possible the long continuance of this period of prosperity which stands without parallel in this or any other country. Its foundation has been, and still is, railroad service, the best the world has ever enjoyed."

Canadian Roads Show Decline in Net

Both the Canadian Pacific and the Canadian National showed a decrease in net earnings in July, the former's decline being nearly $800,000 and the latter's nearly $1,000,000.

Gross earnings of $21,032,354 and operating expenses of $18,565,372 are shown by the summary of earnings and expenses of the Canadian National for the month.

These figures compare with gross earnings of $21,278,013 and operating expenses of $17,813,007 for the month of July, 1926, a decrease in gross earnings of $245,659, equivalent to 1.15 per cent, and an increase in operating expenses of $752,364, or 4.22 per cent.

The net earnings for the month of July last total $2,466,981, as against $3,465,006 for July, 1926, a decrease of $998,024. The operating ratio for July, 1927, thus rose to 88.27 per cent in comparison with 83.71 per cent for July, 1926.

For the seven-month period from January 1 to July 31 of the current year the gross earnings of the system amount to $150,731,168, as compared with $146,739,904 during the similar period of 1926, an increase of $3,391,263, or 2.72 per cent in favor of 1927.

Since January 1 last the operating expenses total $134,193,398 in comparison with $127,717,162 in 1926, an increase of 5.07 per cent.

The net earnings during the seven-month period of 1927 are $16,537,769, as against $19,022,741 in 1926, a decrease in the current year of $2,484,972. The operating ratio in seven months of 1927 is 89.02 per cent, in comparison with 87.04 in the similar period of 1926.

The figures quoted for both years are for the Canadian National exclusive of the eastern lines. In accordance with the Maritime Freight Rates Act of 1927, the accounts of lines east of Levis and Diamond Junction, Que., have been withdrawn from the Canadian National Railways accounts as from July 1, 1927.

Net earnings of the Canadian Pacific Railway in July show the third straight monthly decrease. July of both 1925 and 1926 were exceptionally good months, and July earnings of this year fell below those, but outside of 1925 and 1926 it was the best July showing since 1917.

Gross earnings for the first seven months were the second largest in history for that period, having been exceeded only in 1920, but operating expenses more than kept pace with the increase in gross and the system at the end of July was $1,738,736 below the 1926 net showing.

Gross earnings, operating expenses and net for the month of July and for the seven months compare as follows:

June	1927	1926	Inc.
Gross	$16,028,317	$16,598,421	$569,707
Oper. exp.	12,901,927	12,677,285	224,642
Net	$3,126,786	$3,921,135	$794,349
Seven months:			
Gross	$104,871,277	$101,826,207	$3,045,070
Oper. exp.	88,732,191	83,948,384	4,783,807
Net	$16,139,086	$17,877,823	$1,738,736

Program for the Roadmasters' Convention

The following program has been prepared for the forty-fifth annual convention of the Roadmasters' and Maintenance of Way Association which will be held at the Hotel Statler, Buffalo, on September 20-22.

TUESDAY MORNING

10:00 a.m. Convention called to order.
10:10 a.m. Address of welcome: F. M. Barker, division superintendent, Lehigh Valley, Buffalo, N. Y., and vice-president, Buffalo Chamber of Commerce.
10:30 a.m. In memoriam: W. C. Kidd.
11:00 a.m. Address: R. H. Aishton, president, American Railway Association.
11:20 a.m. President's address: J. B. Kelly, general roadmaster, Minneapolis, St. Paul & Sault Ste. Marie, Minneapolis, Minn.
11:40 a.m. Report of committee: The Rearrangement of Track Work to Promote Uniform Forces Throughout the Year; E. E. Crowley, chairman, roadmaster, Delaware & Hudson, Oneonta, N. Y.

TUESDAY AFTERNOON

2:00 p.m. Report of committee: The Track Department's Share in the Reduction of Stocks of Materials; W. A. Davidson, chairman, roadmaster, Union Pacific, Kearney, Neb.
3:00 p.m. Address: The Centralization and Control of Track Materials; by H. C. Pearce, director of purchases and stores, Chesapeake & Ohio, Richmond, Va.
4:00 p.m. Adjournment to visit exhibit of Track Supply Association.

TUESDAY EVENING

8:00 p.m. Moving pictures of recent developments in track work with discussion.

WEDNESDAY MORNING

9:30 a.m. Report of committee: Means of Reducing Work Train Service; P. J. McAndrews, chairman, roadmaster, Chicago & North Western, Sterling, Ill.
11:00 a.m. Paper: The Use and Abuse of Motor Cars; by C. R. Knowles, superintendent of water service, Illinois Central, Chicago.

WEDNESDAY AFTERNOON

2:00 p.m. Report of committee: The Collection and Use of Cost Data; C. H. R. Howe, chairman, cost engineer, Chesapeake & Ohio, Richmond, Va.
3:00 p.m. Address: The Economics of Heavy Track Construction; by George J. Ray, chief engineer, Delaware, Lackawanna & Western, Hoboken, N. J.
4:00 p.m. Adjournment to visit exhibit of Track Supply Association.

WEDNESDAY EVENING

6:30 p.m. Annual dinner given by the Track Supply Association to the members of the Roadmasters' Association and their families. Addresses by prominent railway officers.

THURSDAY MORNING

9:30 a.m. Report of committee: The Training of Track Men as a Means of Preventing Accidents; G. H. Warfel, chairman, assistant to general manager, Union Pacific, Omaha, Neb.
11:00 a.m. Closing business.

A special train will be provided by the Michigan Central for the members of this association and the members of their families leaving Chicago at 8:30 (Central Time) on Monday morning, September 19, and arriving at Detroit at 4:00 p. m. (Eastern Time) and at Buffalo at 9:15 p. m.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, 165 Broadway, New York City. Annual convention, May 5-8, 1928, Detroit, Mich. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Charles R. Busch, Buffalo Brake Beam Co., 32 Nassau St., New York. Meets with Air Brake Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—J. D. Gowin, 112 W. Adams St., Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next annual meeting, November 1, 1927, Havana, Cuba.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Annual convention, June, 1928, Memphis, Tenn.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—C. E. Bell, Seaboard Air Line, Washington, D. C. Next meeting, October, 1927, Chicago.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 292 Madison Ave., New York. Annual convention, Oct. 3-7, 1927, Cleveland Public Auditorium, Cleveland, Ohio.

AMERICAN RAILROAD MASTER TINNERS' COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster 30 Vesey St., New York, N. Y.

Division I.—Operating—J. C. Caviston, 30 Vesey St., New York.

Freight Station Section (including former activities of American Association of Freight Agents)—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., N. Y.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association)—J. C. Caviston, 30 Vesey St., New York.

Safety Section.—J. C. Caviston, 30 Vesey St., New York. Annual meeting, May 16 and 17, 1928, Buffalo, N. Y.

Telegraph and Telephone Section including former activities of the Association of Railroad Telegraph Superintendents.—W. A. Fairbanks, 30 Vesey St., New York. Next meeting, Oct. 4-6, The Willard, Washington, D. C.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting offices).—G. W. Covert, 431 South Dearborn St., Chicago.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Annual meeting, March 6-8, 1928, Chicago. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—G. H. Fritch.

Electrical Section.—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York. Next meeting, Sept. 13-15, 1927, Mount Royal Hotel, Montreal, Que.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual convention, June 13-20 1928, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual convention, Sept. 13-15, 1927, Hotel Kentucky, Louisville, Ky.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y.

Division VII.—Freight Claims. (including former activities of the Freight Claim

Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, 1928. Detroit, Mich.

Car Service Division.—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.

AMERICAN RAILROAD BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Ry., 319 N. Waller Ave., Chicago, Exhibit by Bridge and Building Supply Men's Association. Annual convention, October 18-20, 1927, Hotel Nicollet, Minneapolis, Minn.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—M. C. Burton, General Industrial Agent, A. T. & S. F., Topeka, Kan. Semi-annual meeting, Dec. 1 and 2, 1927, Chicago. Annual convention, 1928, Miami, Fla.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railroad Association Division IV). E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 6-8, 1928, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M. & St. P. Ry., 11402 Calumet Ave., Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, 1319-21 F St., N. W., Washington, D. C. Next meeting, December, 1927.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, Associate Mechanical Editor, *Railway Age*, 30 Church St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—E. J. Stocking, 111 West Washington St., Chicago. Next annual convention, Jan. 24-26, 1928, Montreal, Que.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Next meeting, June, 1928, Omaha, Neb.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N., Room 413, C. & N. W. Station, Chicago. Annual meeting, Oct. 25-28, 1927. Hotel Sherman, Chicago, Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th and H. Sts., N. W., Washington, D. C.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—D. A. Hultgren, secretary, Massey Concrete Products Co., 1328 McCormick Bldg., Chicago. Annual exhibit at convention of American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Charron St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Fine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—R. E. Giger, 731 North 23rd St., East St. Louis, Ill. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—(See Railway Car Department Officers' Association.)

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual convention, 1928, Chicago. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—W. R. Walsh, Ewald Iron Co., Louisville, Ky.

INTERNATIONAL RAILROAD FUEL ASSOCIATION.—L. G. Plant, 80 E. Jackson Blvd., Chicago. Annual convention, May 7-11, 1928, Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 6-9, 1927, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—W. J. Dickinson, 189 W. Madison St., Chicago. Meets with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York. Annual meeting, May, 1928, Cleveland, O.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—E. A. Morse, vice-president, Potosi Tie & Lumber Co., St. Louis, Mo. Next annual convention, April 24-26, 1928, Arlington Hotel, Hot Springs, Ark.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Annual meeting, October 17, 1927, Dallas, Tex.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: J. E. Long, Superintendent Safety, D. & H., Albany, N. Y. Annual meeting, September 27-29, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings 3rd Friday in month, except June, July and August.

PACIFIC RAILROAD CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2nd Thursday, in month, alternately in San Francisco and Oakland.

RAILROAD MOTOR TRANSPORT CONFERENCE.—R. H. Newcomb, 492 South Station, Boston, Mass.

RAILWAY ACCOUNTING OFFICERS ASSOCIATION.—E. R. Woodson, 116 Woodward Building, Washington, D. C. Next convention, May 1-4, 1928, Atlanta, Ga.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa. Annual meeting, November, 1927, Hotel Commodore, N. Y.

RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Supply Men's Association.—B. S. Johnson, W. H. Miner, Inc., 209 S. La Salle St., Chicago.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton, St., Chicago. Meets with Association of Railway Electrical Engineers, Oct. 25-28, Hotel Sherman, Chicago.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association, September 13-16, 1927.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 11-13, 1927, Detroit, Mich.

RAILWAY REAL ESTATE ASSOCIATION.—C. C. Marlor, 208 W. Washington St., Chicago.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION. J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, A. R. A.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, Sept. 1-3, 1927, Detroit, Mich.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual convention, September 20-22, 1927, Hotel Statler, Buffalo, N. Y. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A., Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—Clyde Kimball, Inman Shops, Atlanta, Ga. Meets semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo-Ajax Corporation, Hilburn, N. Y. Meets with Roadmasters' and Maintainance of Way Association, September 20-22, 1927.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, Gen. Supt. R. S., New York Central, Buffalo, N. Y. Annual meeting, September 13-16, 1927, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—J. W. Fogg (treasurer), vice-pres. of MacLean-Fogg Lock-Nut Co., 2649 N. Kildare Ave., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Traffic

The Boston & Maine has opened a freight and passenger office at Montreal, Canada, 263 St. James street, in charge of Andrew F. Lane. Mr. Lane is transferred from Pittsburgh, Pa., where he is succeeded by R. C. Chambon, heretofore at Kansas City.

The Chicago & North Western, at its Chicago passenger terminal, has installed a display of food products manufactured by various concerns along its lines, an exhibit which gives an insight into modern scientific farm food preparation and current developments in the use of western agricultural staples. Included in the exhibit are syrups, starches, corn sugar, corn oil cakes, livestock food and other products.

The Illinois Central on September 1 began its eighth year of advertising in newspapers along its lines. It has utilized 500 newspapers once a month regularly reaching 20,000,000 readers. The subjects discussed have covered every phase of railway business, the purpose being to develop an informed public opinion, to bring forth suggestions for improvement in railway service and to win and increase good will for the system.

The Interstate Commerce Commission has announced a series of hearings in connection with Part 3 of its general freight rate investigation, relating to rates on cotton, and related formal complaint cases, to be held before Commissioner Woodlock and Examiner Mattingly. The first hearing will be at Atlanta, Ga., on October 13, to be followed by one at Gulfport, Miss., on the day following the termination of the Atlanta hearing, and others at Los Angeles, Calif., on October 31, Oklahoma City, Okla., on November 18, and Dallas, Tex., on November 25. These hearings are for the purpose of receiving evidence on behalf of state commissions and shippers, except that the carriers may present evidence if they so desire at the hearing at Los Angeles. Later hearings for the receipt of carrier evidence will be held early in 1928.

The Interstate Commerce Commission has announced a conference to be held at its offices in Washington on September 20 in connection with Part 9 of its general freight rate investigation, relating to rates on livestock in the Southeast. The notice says the commission regards this proceeding as one in which cost data are pertinent and desirable and it desires the views of state commissions, shippers and carriers as to the kind of cost data that will be most helpful and at the same time keep its requirements at a minimum.

The Interstate Commerce Commission has addressed a questionnaire to railroads having port facilities at south Atlantic and Gulf ports calling for data to be used at hearings in connection with its investigation of charges for wharfage, handling, storage and other accessorial services. A similar questionnaire had been addressed to the carriers serving north Atlantic ports.

Erie's New Jersey City Pier Completed

The Erie's new $4,000,000 fireproof pier at the Jersey City, N. J., entrance of the Holland vehicular tunnel under the Hudson river to New York, has been completed and placed in operation. With the opening of the tunnel to traffic in October, the effect of this improvement will be to connect Erie's Jersey City tidewater terminals by land with the business district, which ships out and takes in more freight traffic than any other section of Manhattan Island.

John J. Bernet, president of the Erie, points out that the opening of the pier, together with the opening of the Holland tunnel of which it is a part, places Erie's freight terminals "at the front door of New York."

"This great undertaking," Mr. Bernet is quoted by the *Wall Street Journal* as saying "connects the Erie's freight terminals by land with New York City and brings them within easy trucking distance of the business district which takes in and ships out more freight than any other section of Manhattan Island. Besides providing the short truck haul, and the modern facilities, which assure quick dispatch and efficient handling, the location is free of congestion for truck and drays on a spacious pier which enables prompt handling and segregation of cargo. It provides a physical connection at the point where rail and water meet and for export and import freight it means a saving of one to three days in transit time, the elimination of lighterage to a large degree and a direct transfer between cars and steamships, because the ships can be unloaded directly into the cars and from the cars into the ships. It means something to the commercial supremacy of the Port of New York which cannot be underestimated."

The new pier, known as "No. 9," has been leased to Dollar Steamship Co., which already has begun berthing its ships, both passenger and freight, plying between New York and ports around the world. Beside leading directly to the new pier, the Holland vehicular tunnel leads also directly into all the Erie's other piers and freight tracks at the Jersey City terminal.

The Erie has for several years utilized motor trucks, rather than car floats, for a large volume of its freight between Jersey City and New York. These trucks have in the past crossed the Hudson by ferry. The completion of the tunnel will reduce the transit time.

Preparations for Northwest Wheat Movement

Eastern and southeastern railroads have been expediting the return of western box cars in anticipation of the fall demands for the wheat movement of the Northwest, says L. M. Betts, manager of the closed car section of the Car Service Division of the American Railway Association, in a circular letter to officers and committeemen of the Northwest Shippers Advisory Board. As of August 1 the number of cars belonging to western grain roads located on the principal eastern and southeastern roads had been reduced to 38,944, the lowest that has ever been reported as of that date. The letter points out that the 1927 crop will somewhere nearly approximate the volume of the 1924 crop and that the lines interested in the Northwest wheat movement had nearly one-third more box cars in storage for grain loading on August 15 than on the same date in 1924. The number was increasing and was expected to reach a higher figure by September 1.

The grain movement in the winter wheat territory, so far has not caused any strain on the facilities of the roads involved, Mr. Betts says, adding that it is reasonable to anticipate that the movement in the Northwest will perhaps be a little more active than has occurred in the Southwest and, with a heavy crop in Montana, which involves a long rail haul, the roads concerned will undoubtedly find it necessary to employ all facilities available to take care of the situation.

Grape Permit Conference Established

The Grape Permit Conference, with headquarters at 526 Wells-Fargo building, San Francisco, Cal., has been established to insure the prompt handling and equitable apportionment as far as may be practicable of all permits that can be issued against existing embargoes among owners and shippers of grapes in California. This conference, which is sponsored by the Pacific Coast Transportation Advisory Board and which is composed of the district manager of the American Railway Association and representatives of the eastern lines, meets daily at 11 a. m. except Sundays and holidays for the purpose of considering the passing of permit applications that shall be brought before the conference at the time.

It has been the custom for individual shippers to wire eastern representatives at their own expense when a permissive embargo had been established due to flooded markets, asking permits for the movement of their individual cars into the embargoed terminals. The cost of individual telegrams has been a source of large expense to shippers. The principal object of the new plan is to eliminate this expense and substitute a clearing house where the matter can be handled locally by shippers with representatives of eastern roads.

The plan provides for the application of shippers or owners for carload grape permits, to be filed either with the representative of the eastern carriers in California or the chairman of the conference at San Francisco. Applications received are considered by the conference in the sequence of receipt. This plan has been formulated as a method of operation in the event embargoes become a necessity.

THE MANUFACTURE of rivets and their application to steel structures such as cars, boilers, tanks, bridges and buildings, and the vital part which rivets play in such structures was portrayed in a moving picture exhibited to a group of Pittsburgh & Lake Erie railroad men at Pittsburgh, Pa., on August 26. This film has been shown on a number of similar occasions during the past few months by the Hanna Engineering Works, Chicago.

Foreign

Fifteen Killed in Accident on Swiss Mountain Railway

Fifteen persons were killed and 40 injured in a derailment on a rack railway on Mont Blanc, Switzerland, on August 25. The heavy list of casualties was due to the locomotive and one of the cars going over a cliff following the derailment.

New Narrow-Gage Railway for Swiss Alps

The San Bernardino narrow-gage railway, the construction of which has been under discussion in Switzerland for the last two years, is now entering upon a decisive phase. The preliminary studies have been terminated and the reports of the experts are favorable. According to the plan proposed by the engineers and geologists, the line will be 39 miles long, 14.9 per cent being in tunnels, the longest of which, under the San Bernardino Pass, will not exceed 6,105 yards. From Thusis (altitude 2,369 feet), in Canton Grisons, the line is to rise to an altitude of 4,900 feet, pass under the San Bernardino Pass, and come down to Mesocco (2,495 feet) where it will join the electric line to Bellinzona. Construction will take three years and involve an expenditure of $6,800,000, of which $3,800,000 will be supplied by the Swiss Federal Government, the Griscons and Ticino cantons, and the communes concerned, while the remainder will come from the banks and private capitalists.

It is estimated that the receipts will reach $3,600,000 annually, and the expenditure $2,105,000. The line will form an important connection between the Rhaetian Railway and the St. Gothard line, as well as between the Griscons and Ticino cantons. Moreover, it will form a link between eastern Switzerland and southern Germany on the one hand, and southern Switzerland and the north of Italy on the other. It will compete with the projected Italian line under the Stelvio Pass.

Record-Breaking Railway Revenues in Manchuria

For the fiscal year ending March 31, 1927, the South Manchuria Railway showed railway traffic returns of 108,000,000 gold yen ($54,000,000), an increase of 10,000,000 gold yen over the previous year's receipts, while the Chinese Eastern Railway's traffic receipts were 47,600,000 gold roubles ($23,800,000) in 1926, as against 41,800,000 gold roubles in 1925 says advices from Consul Samuel Sokobin, Mukden, China, made public by the Department of Commerce.

The freight receipts for the South Manchuria Railway were approximately 10 per cent greater than in the previous year.

The tonnage handled by the South Manchuria Railway and the Chinese Eastern Railway, the two main railway systems of this region, and their record breaking traffic receipts are said to justify the great

railway construction which has taken place in Manchuria since 1925 and is now taking place, construction since the beginning of 1925 involving altogether some 700 miles. The mileage of railways in Manchuria now comprises more than half of China's total railway mileage.

The factors making for the improved showing of these two railways were (1) a large carry over from the bumper crops of 1925, providing sufficient tonnage to be handled in months which are ordinarily slack; (2) the increasing demand for coal from Manchuria, which alone provided an increase of some 200,000 long tons carried by the South Manchuria Railway over the previous year; (3) the growing passenger traffic due to the increase of population in Manchuria partly resulting from immigration from intramural China.

The South Manchuria Railway's earnings were particularly noteworthy, as the operating expenses were only 42 per cent of the revenue and an operating profit of 62,000,000 yen ($30,000,000) was shown for the year.

New Railways in Africa

In Africa several important trunk lines are nearing completion which will serve to open up more of this continent. Among them are the northern section of the Nigerian Eastern Railway, from the Benue river to the junction with the western system at Kadune, which was opened for traffic last April, giving the northern part of Nigeria, with its tin fields, direct access to the sea at Port Harcourt as well as at Lagos. The recently opened Tangier-Fez line must also be mentioned.

Of the new arterial routes still under construction but sufficiently advanced to render it reasonably certain that they will be open for traffic within the next twelve months the longest is the Bas Congo-Katanga Railway, which will prolong the trunk line from Cape Town to the navigable Congo at Bukama for some seven hundred miles to a new river terminus at Port Francqui (Ilebo) on the Kasai, near its confluence with the Sankuru, giving a continuous line of rails of 3ft. 6in. gage extending for 3,300 miles from Cape Town. Over 400 miles of the Bas Congo-Katanga line are already in operation, of which 300 are in the southern end and the remainder at the northern, work having been carried on from both Bukama and Port Francqui. It is now anticipated that the two sections will be linked up next January or February. The Katanga mineral belt will then have a direct national route by rail (two sections) and by river (one section) to the Congo estuary at Matadi. Meanwhile the reconstruction of the Matadi-Stanley Pool Railway is being pushed forward. The earthwork and bridges are being built to a standard that will enable the conversion of this 2ft. 6in. gage line to 3ft. 6in. to be carried out by simply relaying the track as soon as the necessity arises. New financial arrangements recently concluded in Belgium will facilitate the extension of the Bas Congo-Katanga line from Port Francqui to Stanley Pool and the conversion of the Matadi-Kinshana line to the wider gage, and it is believed that these operations will soon follow the opening of the extension from Bukama to Port Francqui. If these hopes are realized it will not be many years before a continuous rail journey between Cape Town and the Congo mouth will be possible.

In the same part of the continent the Benguella Railway is steadily progressing. The earthwork has now reached the Angola-Congo frontier and the rails are expected to reach this point by the end of the year. The continuation of the line through Belgian territory will then be begun. About the year 1930 through trains should be running from Lobito Bay to Tshilongo, the point of junction of the existing main line from the Cape to the Congo.

In East Africa the prolongation of the Kenya-Uganda Railway to a junction with the Busoga Railway in Uganda has been in progress for several years, and the linking up of the two railways will be effected in 1928. Good progress with the extension towards the Nile north of Lake Albert and to Kampala, the commercial capital of Uganda, should also be made next year. The Lake Victoria branch of the Tanganyika Central line, from Tabora to Mwanza, was opened a few weeks ago as far as Shinyanga, and the first train should reach Mwanza early in 1928. Lake Victoria will then have railway communication with both Mombasa and Dar-es-Salaam. The extension of the Tanga Railway from Moshi to Arusha should also be completed next year. Farther south the next twelve months should see work begun on the Zambesi bridge and possibly on the extension of the Nyasaland Railways from Blantyre northwards in the direction of the south end of Lake Nyasa. The construction of a combined road and rail bridge over the Limpopo at Liebeg's Drift and the extension of the South African Railways' branch from Messina to a new railhead about a mile north of the river in Southern Rhodesian territory are now assured as the result of the ratification of the two Parliaments of the agreements recently negotiated.

Other railway construction either in progress or contemplated in the immediate future consists of, for the most part, branch lines, rather than of new trunk routes. The railways being built in the Union of South Africa are all short feeder lines and this description also applies to the Somabula-Shabanie branch in Southern Rhodesia, now nearing completion. In Nigeria the Zaria-Gusau line may, however, be regarded as the first section of a trunk line which will eventually extend far into north-western Nigeria. The Pointe Noire-Brazzaville line in French Equatorial Africa, designed to provide a French route from Stanley Pool to the Atlantic, may also be classed as a main line, but it will not be completed for from five to six years.

Of the important new African railway arteries projected but not yet authorized, two of the most important are the Trans-Sahara and the Stanleyvelle-Nile lines. Survey parties are at work on the latter. Conversion of the narrow gage link between Fez and the Algerian system to standard gage, which has been authorized, will improve lateral communications between Morocco, Algeria, and Tunis.

Equipment and Supplies

Locomotives

THE DETROIT & TOLEDO SHORE LINE contemplates buying four eight-wheel switching locomotives.

THE BELT RAILWAY OF CHICAGO has ordered five 8-wheel switching type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of August 13.

THE SOUTH AFRICAN RAILWAYS ADMINISTRATION is asking for bids from locomotive builders throughout the world for one electric freight locomotive. They want an electric locomotive which will be a big improvement on those in use at present, and it is their intention to test this new unit against the three units now in service. The actual design is left to the tenderers, but certain specifications must be complied with. It is understood that if this experiment is successful contract for one locomotive will be followed by a large order. As reported in the *Railway Age* of August 27, the South African Railways are now inquiring for 125 steam locomotives.

Freight Cars

THE WESTERN MARYLAND will make repairs to 1,000 freight cars in its own shops.

Passenger Cars

THE CONSOLIDATED RAILWAYS OF CUBA contemplates buying three sleeping cars.

THE LEHIGH VALLEY has ordered 1 gas-electric rail motor car and 1 trailer car from the American Car & Foundry Company; 1 gas-electric rail motor car and 2 trailer cars from the Bethlehem Steel Company, and 1 gas-electric rail motor car and 1 trailer car from the Osgood-Bradley Car Company. Inquiry for this equipment was reported in the *Railway Age* of July 16. Two motor cars and three trailer cars are to be equipped with roller bearings and 1 motor car and 1 trailer car with standard A. R. A. journal bearings.

Iron and Steel

THE PENNSYLVANIA is inquiring for 325 tons of steel for various bridges.

THE GREAT NORTHERN is inquiring for 2,300 tons of structural steel for bridge work.

THE MISSOURI PACIFIC is inquiring for 200 tons of structural steel for its shops at St. Louis.

THE CHICAGO, MILWAUKEE & ST. PAUL is expected to order 20,000 tons of rails in September or October.

THE LEHIGH VALLEY has ordered 1,200 tons of steel for its bridge at Newark, N. J., from the Bethlehem Steel Company.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 150 tons of structural steel for a bridge at Muncie, Ind., from the Mt. Vernon Bridge Company.

Machinery and Tools

THE CHICAGO, MILWAUKEE & ST. PAUL is inquiring for one 28-in. drill.

THE CENTRAL OF NEW JERSEY has ordered a drop table and locomotive hoist from the Whiting Corporation.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA has ordered a car wheel borer from the Niles-Bement-Pond Company.

Signaling

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company an electro mechanical interlocking, 16 mechanical levers and 6 electric, for Sullivant, Ohio.

THE CHICAGO RAPID TRANSIT COMPANY has ordered from the Union Switch & Signal Company a Saxby & Farmer interlocking, 12 levers, for Laramie avenue, Chicago.

THE CHESAPEAKE & OHIO has ordered from the Union Switch & Signal Company an electro mechanical interlocking for Hilldale, W. Va.; 8 mechanical levers and 3 electric.

THE CENTRAL OF NEW JERSEY has ordered from the Union Switch & Signal Company 10 locomotive equipments for engines which are run over the Baltimore & Ohio between Philadelphia and Wilsmere Junction.

THE ALIQUIPPA & SOUTHERN (Pittsburgh, Pa.) has ordered from the Union Switch & Signal Company for its freight yard at Woodlawn, Pa., 2 mechanical interlocking machines (8 levers each), 6 light signals and other material.

THE ATCHISON, TOPEKA & SANTA FE has ordered from the Union Switch & Signal Company, 75 style T-2 signals and other material for the purpose of installing the automatic block system between Angiola, California, and Landco, 52 miles, single track; and between Landco and Oil Junction, 3 miles, double track.

Electric Snow Melters

The Interborough Rapid Transit Company, New York City, has bought from the Westinghouse Electric & Manufacturing Company 1,060 electric snow melter units —a shipment of material filling two freight cars. The Interborough already has in use at switches in its yards a large number of units of this device, having made excellent use of the melters in February, 1926, when the snowfall in New York was about 12 inches. The group of heaters at each switch is connected to the power line by a simple switch, by means of which yard men can turn on the current whenever occasion demands.

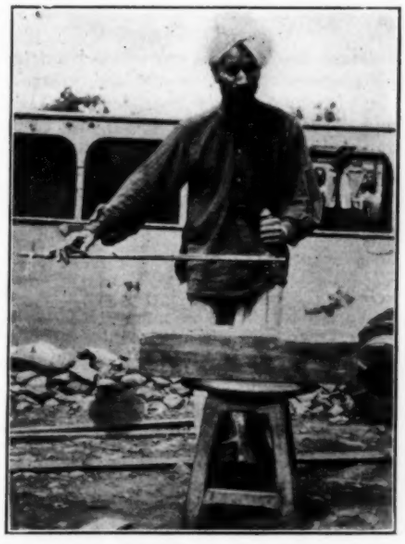


Photo Courtesy J. D. Rogers

Hindu Car Carpenter on Uganda Railways Using Bow Drill

Supply Trade

The American Steel & Wire Company is taking bids for the construction of a one-story plant at De Kalb, Ill.

The Whiting Corporation, Harvey, Ill., has placed a contract with Schmidt Brothers, Chicago, for the construction of a foundry addition 70 ft. by 160 ft.

The Blaw-Knox Company, Pittsburgh, Pa., on October 1 will remove its New York City office from 30 East Forty-second street to the Canadian Pacific building, 342 Madison avenue.

The Strauss Bascule Bridge Company, Chicago, has changed its corporate title to the **Strauss Engineering Corporation. Joseph B. Strauss** is president, and **Charles A. Ellis** and **Clifford E. Paine** are vice-presidents.

B. T. Anderson, superintendent of signals of the Chesapeake & Ohio, with headquarters at Richmond, Va., has resigned to become assistant vice-president of the **Union Switch & Signal Company,** with headquarters at Swissvale, Pa.

M. S. Snow, vice-president and director of the **Whitman Barnes-Detroit Corporation**, Detroit, Mich., has resigned and has been succeeded by **Karl Kendig**, who is now vice-president and treasurer. **H. Z. Callender,** sales manager, has been appointed secretary and sales manager, and **Thomas S. Poole,** a representative of the corporation, has been appointed direct factory representative for the southern states territory, succeeding **Fred A. Hardin,** resigned.

The Heald Machine Company, Worcester, Mass., has acquired the grinding machine interests of the **Giddings & Lewis Machine Tool Company,** Fond du Lac, Wis. The purchase includes all the assets of the grinding machine division of the Giddings & Lewis Machine Tool Company, and drawings, patterns, jigs, tools and fixtures, inventory of machines and parts, patent rights and good will. The Giddings & Lewis Com-

Domestic Railway Purchases of Locomotives, Freight Cars, Passenger Cars, Structural Steel and Rails

	Locomotives		Freight Cars		Passenger Cars		Structural Steel		Rails	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
January	26	60	17,196	11,531	314	217	6,417	6,845	29,000	20,000
February	85	13	4,185	11,353	246	152	620	5,998	68,500	46,200
March	70	407	5,253	8,772	212	112	12,150	12,010	.....	.....
April	27	48	3,362	4,490	6	225	6,120	8,595	12,300	.....
May	184	50	4,378	435	261	30	17,895	21,200	.....	81,540
June	38	191	7,566	4,270	61	124	8,125	8,450	.....	40,028
July	26	14	1,459	1,256	69	68	26,945	7,418	223,325	110,100
August	20	84	1,066	164	36	1	8,976	9,853	.....	124,000
Total eight months	476	867	44,465	42,271	1,205	929	89,248	80,369	333,125	421,868

pany will in future devote its entire efforts to the manufacture and devolopment of horizontal boring, drilling and milling machines.

Obituary

Bertram G. Work, of Oyster Bay, N. Y., president of the B. F. Goodrich Company, Akron, Ohio, died of paralysis of the heart, after an illness of a few hours, on August 30, in the Palace Hotel at St. Moritz, Switzerland. Mr. Work went abroad a month ago for a vacation. He was born on Staten Island, N. Y., on January 9, 1868. After graduating from Williston Seminary, he entered Sheffield Scientific School at Yale with the class of 1889. Because of the death of his father, Alanson Work, who was vice-president and general superintendent and one of the original incorporators of the B. F. Goodrich Company, Bertram G. Work left College after his freshman year and entered the employ of the Goodrich Company as a clerk in Akron. Eighteen months later he was appointed general superintendent, and in a short time was elected a vice-president, becoming president in 1907. Mr. Work was regarded as an authority on crude rubber and during the war served as chairman of the rubber division of the War Service Committee. He had served also as director of a number of other industrial concerns.

Trade Publications

STANDARDS OF THE HYDRAULIC SOCIETY.—The fourth edition of this publication by the Hydraulic Society, New York, comprises 80 pages and contains sections on definitions and values; extracts from pump test codes; a revised pump classification; a description of types, parts and definitions pertaining to the several classes of pumps, and instructions for installing and operating each type; data, tables, curves and formulas for both water and oil and a comprehensive list of materials recommended for pumping different liquids.

OXWELDED ROOF TRUSSES.—In a comprehensive, well-illustrated catalog of 72 pages, the Linde Air Products Company, New York, presents in the form of a report the work which it has undertaken in the design, development, fabrication and testing of a series of oxy-acetylene welded roof trusses of the Fink type. Forming a part of this report are a number of appendices which include comparisons between welded and riveted truss construction, and between the various factors arising in welded construction as these were developed while experimenting with the various trusses.

THE NORTHERN PACIFIC plans the construction of a subway crossing under its line of road at East Ninety-third street, Seattle, Wash., estimated to cost $35,000 of which the city and the railroad each will pay one half.

Construction

CHICAGO, BURLINGTON & QUINCY.—Bids have been received for the construction of extensions to 7 stalls of its roundhouse at Western avenue, Chicago.

CHICAGO & NORTH WESTERN.—A contract has been awarded to G. A. Johnson & Son for the construction of an extension to 5 stalls of its roundhouse at Nelson, Ill.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—A contract has been awarded to the T. S. Leake Construction Company for the construction of a concrete passenger platform at Bedford, Ind., to cost approximately $7,000.

CHICAGO, ROCK ISLAND & PACIFIC—Bids will be closed on September 10 for the construction of a one-story brick passenger station, 24 ft. by 83 ft., at Sayre, Okla.

CHICAGO, ROCK ISLAND & PACIFIC.—Bids closed on August 31 for the construction of extensions to five stalls of the roundhouse at Herington, Kan. This work is estimated to involve an expenditure of about $20,000.

CISCO & NORTHEASTERN.—A contract for grading work incident to the construction of a line between Breckenridge, Tex., and Throckmorton, 35 miles, has been awarded to Allhands & Davis, Dallas, Tex. Contracts will be let soon for the construction of bridges and trestles. Laying of rail and other work in connection with the construction of the extension will be done by company forces.

DETROIT, TOLEDO & IRONTON.—This road has prepared plans for a new terminal at Lima, Ohio, and it is reported, has already acquired 100 acres for the terminal. It is planned to acquire more land for roundhouse and repair shops, construction of which is expected to begin by January 1.

ERIE.—This company has let a contract for work on two bridges in New Jersey, one at Glen Ridge, to the O'Gara Construction Company of Newark, and one at Swartswood to Bates & Rogers Construction Company, Chicago.

FAIRPORT, PAINESVILLE & EASTERN.—A contract has been awarded to the C. A. White Construction Company for the construction of a six-mile extension from Painesville, Ohio, to Madison. The work involves considerable grading, the elimination of a grade crossing east of Painesville and the construction of a tunnel under the New York Central at approximately the same point.

INDIANAPOLIS UNION.—The city of indianapolis, Ind., has awarded a contract to Charles E. Jefferson, Indianapolis, for the construction of a flood prevention channel along the White river in South Indianapolis as the first step in the elevation of the Indianapolis Union line and the construction of a new bridge over the White river. The railroad has announced that work on elevation will be started within 30 days after approval by the city of a bond issue to finance the construction of the flood prevention channel.

LONG ISLAND.—This road closed bids September 1 for lowering its West Hempstead branch track to permit the construction of a bridge on the southern state highway, west of Lake View, L. I.

MISSOURI PACIFIC.—A tract of land containing 103,000 sq. ft. has been purchased by this company at Spring avenue and Market street, St. Louis, Mo., for team tracks. The total expenditure for this improvement is estimated at $200,000.

NORTHERN PACIFIC.—The freighthouse at Fargo, N. D., is being remodeled at a cost of approximately $50,000, so as to house the Fargo division headquarters which will be moved from Dilworth, Minn.

PENNSYLVANIA.—This road is contemplating the building of a new passenger station at Frederick, Md. Plans have not yet been definitely settled.

PITTSBURGH & WEST VIRGINIA.—This company plans to construct a line of road between Cochran Mill and Connellsville, Pa., and has made application for authority to do so to the Interstate Commerce Commission. Hearing on the application has been set for September 19.

QUINCY MARKET COLD STORAGE & WAREHOUSE COMPANY.—This company is reported to be planning the construction of private railroad tracks at Hanover and Commercial streets, Boston, to cost about $25,000.

WACO, BEAUMONT, TRINITY & SABINE.—This company plans to start construction this fall of extensions from Weldon, Tex., to Waco, 109 miles, and from Livingston, Tex., to Port Arthur, 100 miles, providing this company, when construction has been finished, with a through route between Waco and Port Arthur, 257 miles.

On the Maine Central Near Monmouth, Me.

Railway Finance

BALTIMORE & OHIO.—*Tentative Valuation.*—The Intersate Commerce Commission on August 30 made public its tentative valuation report, finding a final value for rate-making purposes, as of 1918, of $579,679,283 for the property used for common-carrier purposes. For the carrier property owned the report places the final value at $349,547,475 and for that wholly owned and used the figure is $348,250,000. Property owned but not used was valued at $1,297,475 and that leased but not owned at $231,429,283. The report in Valuation Docket No. 1068 covers the B. & O., and 35 subsidiary companies, while the Baltimore & Ohio Chicago Terminal is covered in a separate report. For the carrier property both owned and used by the B. & O. C. T. the final value found is $24,943,690; for that owned, $31,467,733, and for that used $25,162,226. The Baltimore & Ohio on valuation date had an outstanding capitalization of $648,897,698 and its investment in road and equipment as stated in its books was $365,837,158. With readjustments required by the accounting examination, the report says, this would be reduced to $333,100,144. The cost of reproduction new of the used carrier property, exclusive of land, was reported as $560,378,022, and the cost of reproduction less depreciation as $437,071,077. Carrier lands were assigned a present value of $102,381,571. The company held securities of and other investments in other companies of a par value of $398,683,067, recorded in its accounts at $346,033,855 book value. The sum of $21,250,000 is included in the final value on account of working capital, including materials and supplies. The Baltimore & Ohio Chicago Terminal on valuation date had a capitalization of $41,044,000 and its book investment in road and equipment was $40,021,067.

BOSTON & MAINE.—*Bonds Sold.*—A syndicate headed by Kidder, Peabody & Co., Lee Higginson & Co. and Harris, Forbes & Co. has offered $30,942,000 first mortgage 5 per cent bonds at 93¼ to yield 5.41 per cent. With this financing, the road will be in a position to retire $29,298,000 of 6 per cent bonds maturing January 1, 1929, now owned or formerly owned by the United States Government, and $1,644,000 of 5 per cent bonds formerly held by the public.

The new issue is subject to the approval of the Interstate Commerce Commission and the road's stockholders, a special meeting of the latter having been called for September 9. The bonds will be dated September 1, 1927, will be due September 1, 1967 and will be callable at 107½ at the road's option upon 60 days' notice up to September 1, 1947, and at 105 thereafter.

The sale of these bonds completes an arrangement in which the United States Treasury and the bankers co-operated in order to give the road an opportunity to take up its war-time bonds under the present favorable financing conditions. The bankers as an accommodation to the road, took over from the government in June (see *Railway Age* of June 11, page 1921) $26,980,000 of Boston & Maine bonds when their sale to other interests appeared likely under conditions which would have imposed a handicap on refinancing plans.

CHESAPEAKE & OHIO.—*Valuation Claim.*—This company has filed with the Interstate Commerce Commission a brief in support of its protest against the commission's tentative valuation, claiming a final value of not less than $356,886,965 for its property used for carrier purposes as of 1916, whereas the final values found in the tentative reports for the C. & O., and C. & O., of Indiana aggregate $198,613,502. The company also asks that not less than $2,004,848 be included as the value of property held for non-carrier purposes. One of the principal points of objection is that the tentative report deducts $41,955,472 or 20.7 per cent, from cost of reproduction new for depreciation. The brief, signed by W. S. Bronson and W. J. Conaty, as counsel, also contains an argument against the use of 1914 prices in a valuation as of 1916. Some extracts are as follows:

> It is axiomatic that as prices of labor and material periodically increase or decrease, property values increase or decrease, and, correspondingly, the purchasing power of the dollar decreases or increases. The courts have recognized this as fundamental in the law of economics in all recent cases involving valuations of public utilities for rate-making purposes, and have plainly said that owners of public utility properties are entitled to their returns upon the values of the properties employed in the public service as of the time of the inquiry, and not upon depreciated values out of harmony with the economic conditions existing at the time of the inquiry.
>
> That this principle is economically sound is demonstrated by the fact that money is but a medium of exchange and did owners of public utilities receive their returns in property rather than in money, the value of the property received would necessarily be based upon the *current exchange value* of property, and the utility would be able to exchange its property for other needed property on the basis of the *current exchange value of such property.* The mere fact that money is used as a medium of exchange does not affect the exchange value of property, since the rod by which the current value of all property is measured is the current dollar and not the dollar of any other period.
>
> Owners of industrial properties and public utilities other than railroads receive their returns in the current dollar upon the basis of the value of property measured by the current dollar, and the economics of this country would indeed be unsound if owners of railroad properties necessarily receiving their returns in the current dollar should be compelled to accept their returns based upon the value of their properties measured by a dollar of entirely different purchasing power than the dollar received by owners of all other property.
>
> Reproduction costs are good evidence of the value of the physical property at the time of reconstruction. Reconstruction costs at 1914 prices of labor and material are not good evidence of the value of the carriers' properties at the time of reconstruction; *i. e.*, valuation date, June 30, 1916, since 1914 prices were not applicable to construction at that time, but substantially higher prices of labor and material were applicable to construction in 1916. It is fallacious, therefore, to apply as the reproduction costs as of valuation date; *i. e.*, June 30, 1916, of the physical properties of the carriers 1914 construction costs, and antagonistic to the rule laid down by the courts for the valuation of public utility properties.
>
> Carriers claim that the 1916 cost of reproduction new of their physical properties is shown by the evidence to be not less than $293,001,074.00, plus the cost of reproduction new of industrial tracks and Chesapeake & Ohio of Indiana telegraph and telephone property, and ask that this cost be reported as the cost of reproduction new as of June 30, 1916, in lieu of the cost of reproduction new at 1914 prices reported in the tentative valuations, and that this cost be used in the determination of final value as of June 30, 1916, valuation date.
>
> In respect of depreciation, the courts have held that it is only that sum which could be *economically* expended at the time of the inquiry to restore the property to normal condition that may be deducted, thereby insuring the public the efficient and economical transportation service furnished by the carrier when the property was first installed and put in practical operation in its seasoned condition. In the valuation of American railroads, no deduction for theoretical depreciation can be made from cost of reproduction new.
>
> Carriers claim that the 1916 cost of reproduction less depreciation of their physical properties is shown by the evidence to be not less than $292,615,343.00, plus the cost of reproduction new of industrial tracks and Chesapeake & Ohio of Indiana telegraph and telephone property, and ask that this cost be reported as the cost of reproduction less depreciation as of June 30, 1916, in lieu of the cost of reproduction less depreciation at 1914 prices reported in the tentative valuation.

DELAWARE, LACKAWANNA & WESTERN.—*Will Deliver Glen Alden Bonds to Lackawanna Securities Company.*—The directors have decided to proceed with the plan of distributing bonds now in the treasury to the new Lackawanna Securities Company to the extent of turning over to the new company $58,500,000 Glen Alden Coal Company 4 per cent first mortgage bonds. The plan called for the formation of the Securities Company, the stock of which was to consist of 844,411 shares without par value to be given to stockholders of the Railroad on the basis of one share of Securities Company stock for each two shares of railroad stock. The railroad company planned to transfer to the Securities Company a total of $92,006,000 of bonds held in the treasury, including besides the Glen Alden securities, three issues of bonds of the Morris & Essex of the New York, Lackawanna & Western, but permission to dispose of two of the issues of the leased subsidiaries was refused by the Interstate Commerce Commission and distribution of the third issue was brought in question.

The Glen Alden bonds were issued in total amount of $60,000,000 in 1921 with a provision that $1,500,000 should be paid off annually after 1925, the first payment having been due on September 1, 1926.

GRAND TRUNK WESTERN.—*C. N. R. Control of Canada, Detroit & Canada Grand Trunk Junction Increased.*—As a part of the proposed consolidation of the former Grand Trunk Western lines the Canadian Government has provided the money and purchased for the Canadian National Railways the Canada, Detroit & Canada Grand Trunk Junction between Fort Huron and Detroit. The capital stock of the company was $1,095,000 consisting of 10,950 shares. Heretofore, the Canadian National held only 5,225 shares of the company but it was able to exercise control through a proxy for 1,797 additional shares. The outstanding shares have now been purchased for 105,734 pounds sterling (about $500,000) and the stock certificates have just been handed over by the Federal Government to the Canadian National. The funds for the purchase advanced by the government will be included in next year's railway budget, after which the advance from the Federal Treasury will be repaid.

MUSKEGON RAILWAY & NAVIGATION COMPANY.—*Control by Grand Trunk Western Authorized.*—The Interstate Commerce Commission has approved the acquisition by the Grand Trunk Western (a subsidiary of the Canadian National) and the Toledo, Saginaw & Muskegon, of control of the Muskegon Railway & Navigation Company under a five-year agreement which, if it works out satisfactorily, will be superseded by control by stock ownership. The two companies have also been authorized to assume obligation and liability in respect of interest payments of $572,300 Muskegon Railway & Navigation Company first mortgage 6 per cent bonds to March 1, 1949.

NEW YORK, NEW HAVEN & HARTFORD. —*Bonds Offered.*—Halsey, Stuart & Co., Edward Lowber, Stokes & Co. and Hambleton & Co. are offering $17,000,000 participation certificates in a 6 per cent collateral note of the New Haven recently purchased by them from the Secretary of the Treasury. The certificates are in $5,000 denominations. They will mature on March 1, 1930, will yield 4.50 per cent to March 1, 1928, the first call date, and 6 per cent thereafter. The $17,000,000 note is secured by $20,000,000 of the road's first and refunding mortgage 6 per cent bonds, due in 1930.

ST. LOUIS & O'FALLON. — *Final Valuation.* — The Interstate Commerce Commission on August 30 made public its final valuation report, finding the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of June 30, 1919, to be $810,000. This is the same figure that was used in the tentative valuation report, dated May 18, 1925, which is now made final as of valuation date. The carrier filed a protest against the tentative valuation and entered an appearance at the hearing, but presented no evidence, brief or argument in support of its protest, the report says. In its report on the excess income of the O'Fallon, which was used as a test case as to methods for bringing valuation data up to date for recapture purposes, dated February 15, the commission found that the value for rate-making purposes of the carrier property O'Fallon was $850,500, as of 1919.

ST. JOHNSBURY & LAKE CHAMPLAIN.—*Lease.*—The Canadian Pacific and the Maine Central in a joint application to the Interstate Commerce Commission ask authority for the Canadian Pacific to acquire by lease and the Maine Central to sub-lease control of that portion of the St. Johnsbury & Lake Champlain from Lunenburg to St. Johnsbury, Vt., 22 miles. It has been operated by the Maine Central under a lease from the St. J. & L. C., which expired on July 1.

Average Price of Stocks and Bonds

	Aug. 30	Last week	Last year
Average price of 20 representative railway stocks..	118.18	119.20	104.16
Average price of 20 representative railway bonds..	94.99	95.22	90.91

Dividends Declared

Alabama & Vicksburg—3 per cent, semi-annually, payable October 1 to holders of record September 8.

Cripple Creek Central.—Preferred, 1 per cent, payable September 1 to holders of record August 15.

Fonda, Johnstown & Gloversville.—Preferred, 1½ per cent, quarterly, payable September 15 to holders of record September 10.

Pere Marquette.—Common, 1½ per cent, quarterly, payable October 1 to holders of record September 14. Prior preference, 1¼ per cent, quarterly; 5 per cent preferred, 1¼ per cent, quarterly, both payable November 1 to holders of record October 14.

St. Louis-San Francisco.—Common, $1.75, quarterly; common $.25, extra, both payable October 1 to holders of record September 9.

Vicksburg, Shreveport & Pacific.—Common, 2½ per cent, preferred, 2½ per cent, semi-annually, both payable October 1 to holders of record September 8.

Valuation Reports

The Interstate Commerce Commission has issued valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

Final Reports

St. Louis & O'Fallon.....	$810,000	1919
Georgia Railroad (Lessee Organization).....	1,150,741	1916
(Property used but not owned)	16,031,040	
Great Western.....	1,766,000	1918
Port Huron & Detroit.....	344,129	1919
Port Huron Southern.....	71,400	1919
Meridian & Memphis.....	648,043	1917

Tentative Reports

Arizona Eastern (supplemental report)	$10,081,198	1915
Baltimore & Ohio.....	348,250,000	1918
Baltimore & Ohio Chicago Terminal	24,943,690	1918
Chatham Terminal.....	35,000	1919

Plant of Rogers, Ketchum & Grosvenor, Locomotive Builders at Paterson, N. J., in Civil War Days

Officers

Executive

E. M. Durham, Jr., vice-president of the Missouri Pacific, with headquarters at St. Louis, Mo., has been elected senior vice-president, with the same headquarters. This is a newly created position.

John J. Mantell, resident vice-president of the New York district of the Erie, with headquarters at New York, has resigned, effective September 1, to engage in other business. Mr. Mantell was born in Elmira, N. Y., on June 24, 1884, and was educated in the public schools of that city and at Elmira Academy. He entered railway service in June, 1899, as a clerk and stenographer in the superintendent's office of the Erie. He later served consecutively as yard clerk, chief yard clerk, yard master and general yard master at Croxton and Jersey City, N. J., and at Susquehanna, Pa. He was then appointed special agent in the office of the general superintendent at New York and then served successively as trainmaster of the Delaware & Jefferson divisions, terminal trainmaster at Jersey City and superintendent of the Wyoming division. Mr. Mantell was appointed superintendent of terminals at Jersey City in 1915, and in May, 1917, was advanced to general superintendent, Lines East. During federal control, Mr. Mantell was terminal manager at Jersey City for the Eastern and Allegheny regions, and at the termination of federal control was appointed manager of the New York region. He was appointed vice-president of the New York region at New York in 1922, and in February, 1927, was appointed resident vice-president of the New York district, which position he was holding at the time of his resignation from the railroad.

J. J. Mantell

Financial, Legal and Accounting

Robert **Surgeon** has been appointed freight claim agent of the Canadian National at Montreal, Que., with jurisdiction from Cochrane, Ont., North Bay, Danforth and East to River Du Loup and Monk, Scotia Jct., to Depot Harbor, Ont., and Orillia to Midland, Ont., also the lines in Vermont, New Hampshire and Maine.

Operating

John E. Hogan has been appointed trainmaster of the Fargo division of the Northern Pacific, with headquarters at Staples, Minn.

W. G. Templeton, who has been promoted to general manager of the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn., was born on April 2, 1872, at Beach Grove, Tenn. He entered railway service in June, 1893, as a telegraph operator on the Nashville, Chattanooga & St. Louis, which position he held until 1901, when he was made a dispatcher. He held the

W. G. Templeton

latter position until 1911, when he was appointed a clerk in the superintendent's office and later assistant trainmaster. In 1913 he was promoted to trainmaster, which position he held until 1914, when he was appointed superintendent of the Huntsville division, with headquarters at Tullahoma, Tenn. In 1916 he was promoted to superintendent of the Nashville division, with headquarters at Nashville, Tenn., which position he has held until his recent promotion.

John M. Condon, superintendent of the New York district of the Erie, with headquarters at Jersey City, N. J., has been appointed general manager of that district with the same headquarters. **Alva C. Elston**, assistant to resident vice-president at Jersey City, has been appointed superintendent of the New York division and side lines of the New York district. A biographical sketch of Mr. Elston's railroad career appeared in the *Railway Age* of February 19, 1927, on page 547. **John T. Gallagher** has been appointed manager of station service, with headquarters at New York City.

Lowell White, who has been appointed general superintendent of telegraph, mail and express traffic of the Atlantic Coast Line, with headquarters at Wilmington, N. C., was born May 14, 1880, at Burlington, Ia. He was graduated from Harvard University in 1903, and entered railway service as clerk in the freight audit department of the Chicago, Burlington & Quincy at Chicago. From February, 1904, until November, 1904, he was clerk in the freight station and cashier's office of that road at Burlington, Ia. He remained with that road in the positions of assistant traveling auditor and maintenance of way clerk in the superintendent's office at Galesburg, Ill., until February, 1906, when he was appointed chief clerk to the assistant to the president of the Wabash at Chicago. Following that he was chief clerk to the purchasing agent of the Wheeling & Lake Erie at Pittsburgh, Pa., until December, 1908, purchasing and supply agent of the St. Louis, Brownsville & Mexico, at Kingsville, Tex., until March, 1911; assistant purchasing agent of the Frisco lines in Texas and Louisiana, at Houston, Tex., until March 1914, when he went to the Atlantic Coast Line as special agent in the president's office. He held the difierent positions of assistant to the general superintendent of transportation in charge of fixing engine ratings and increasing train loads; superintendent of, first, the Norfolk district, at Norfolk, Va., then, the First division at Rocky Mount, N. C., and in 1918, was appointed superintendent of transportation of the entire system, a position he held until his present appointment.

Traffic

I. W. Carter, district passenger agent of the Union Pacific, with headquarters at New York, has been promoted to assistant general passenger agent, with headquarters at Denver, Colo.

C. N. Christopherson, traveling freight and passenger agent of the Great Northern, with headquarters at Vancouver, Wash., has been promoted to general agent, with headquarters at Klamath Falls, Ore.

H. L. Schaeffer, chief clerk in the passenger department of the Missouri Pacific, with headquarters in St. Louis, Mo., has been promoted to assistant general passenger agent, with the same headquarters.

L. A. Campbell, traveling immigration agent of the Northern Pacific, has been promoted to agricultural development agent for the territory of northern Idaho and western Montana, with headquarters at Missoula, Mont.

C. H. Hagerty, division passenger agent of the Pennsylvania, with headquarters at Louisville, Ky., has been appointed general agent, with the same headquarters. **L. G. Russell** has been appointed district passenger agent, with headquarters at Louisville.

E. D. Disque, traveling passenger agent for the New York Central at Memphis, Tenn., has been promoted to general agent of the passenger department for Oklahoma City, Okla., and Tulsa, succeeding **C. L. Holloway**, who has retired because of ill health.

John S. McClure, assistant general passenger agent of the Union Pacific, with headquarters at Denver, Colo., has been transferred to Portland, Ore., and will be succeeded by **I. W. Carter**, district passenger agent, with headquarters at New York, who in turn will be succeeded by **H. A. Lawler**, general agent, with headquarters at Seattle, Wash.

A. W. Gill, assistant general freight agent of the Southern, Lines West, with headquarters at Cincinnati, Ohio, has been appointed general freight agent, with the same headquarters, succeeding **F. S. Reigel**, who has resigned to engage in other business. **T. J. Logan** has been appointed assistant general freight agent, with headquarters at Cincinnati.

C. A. Hunt, chief of the tariff bureau of the Michigan Central, with headquarters at Detroit, Mich., has been appointed assistant general freight agent of the Chicago & Illinois Midland, with headquarters at Chicago. Mr. Hunt will have charge of tariffs, divisions and rate legislation and will replace **R. S. Sneed** and **L. E. Butler** who have been assigned to other duties.

P. S. Lottinville, general agent for the Chicago & Eastern Illinois at Chicago Heights, Ill., has been appointed general agent for the Chicago Heights Terminal Transfer at that point. The announcement concerning the appointment of Mr. Lottinville appearing in the *Railway Age* of August 6 was in error in that it implied that he also retained his connection with the Chicago & Eastern Illinois.

T. R. Fitzpatrick, assistant general freight agent in charge of coal and coke rates and divisions of the Pittsburgh & Lake Erie, with headquarters at Pittsburgh, Pa., has been appointed general coal freight agent, with the same headquarters. His former position has been abolished. **D. G. Hood**, general agent, has been appointed coal freight agent at that point. The office of general agent has been abolished.

H. A. Plow, assistant general freight agent on the Canadian Pacific, with headquarters at Vancouver, B. C., has been promoted to general freight agent, of the Western lines, with headquarters at Winnipeg, Man., succeeding **C. E. Jefferson**, previously appointed assistant freight traffic manager of the Western lines. **A. T. McKean**, division freight agent, with headquarters at Calgary, Alta., has been promoted to assistant general freight agent, replacing Mr. Plow. **K. Elliott**, district freight agent at Edmonton, Alta., has been promoted

to division freight agent, with headquarters at Regina, Sask., succeeding **R. W. Drew**, who has been transferred to Calgary to succeed Mr. McKean. **G. A. Staples**, freight agent at Calgary, has been appointed district freight agent, with headquarters at Edmonton, Alta., succeeding Mr. Elliott. All appointments are effective September 1.

Mechanical

T. A. Saunders, who has been promoted to master car builder of the Tennessee Central, with headquarters at Nashville, Tenn., was born in Buckingham County, Va., on June 6, 1867. He entered railway service as a car repairer on the Chesapeake & Ohio at Huntington, W. Va., on September 22, 1889, where he remained in various capacities in the car department until July, 1903, when he was appointed a foreman in the car department of the Illinois Central at

T. A. Saunders

Paducah, Ky. On March 9, 1913, Mr. Saunders was appointed general foreman of the Tennessee Central at Emory Gap, Tenn., becoming general foreman in the car department, with headquarters at Nashville, on October 1, 1917. Mr. Saunders remained as general foreman in the car department until his promotion to master car builder, with headquarters at Nashville, on August 1.

E. B. Hall, superintendent of motive power of the Chicago & North Western, with headquarters at Chicago, has been promoted to general superintendent of motive power and machinery, to succeed **H. T. Bentley**, who has retired under the pension rules of the company. **H. L. Harvey**, assistant superintendent of motive power and machinery, with headquarters at Chicago, will succeed Mr. Hall.

Engineering, Maintenance of Way and Signaling

Frederic W. Alexander, who has been promoted to engineer of maintenance of way of the Western lines of the Canadian Pacic, with headquarters at Winnipeg, Man., was born on November 22, 1878, at Fredericton Junction, N. B., and entered railway service in June 1897, in the chief engineer's office of the Bangor & Aroostook. Until 1902 he held various positions in the engineering department, including that of resident engineer on construction. In 1903

F. W. Alexander

he was on location work for the Restigouche & Western. In the same year he entered the employ of the Canadian Pacific as a transitman and after holding various positions in the engineering department was promoted to resident engineer at Calgary, Alta., in 1905. In 1911 he was promoted to assistant division engineer and in 1913 to division engineer. In 1919 he was promoted to district engineer, with headquarters at Calgary, Alta., which position he has held until his recent promotion.

D. C. Barrett, assistant division engineer of the Wisconsin division of the Chicago & North Western, with headquarters at Chicago, has been appointed acting division engineer of the Minnesota division, with headquarters at Winona, Minn., to succeed **T. J. Irving**, who has been granted a leave of absence.

B. T. Anderson, superintendent of signals of the Chesapeake & Ohio with headquarters at Richmond, Va., has resigned to become assistant vice-president of the Union Switch & Signal Company. **C. A. Taylor**, assistant superintendent of signals, with headquarters at Richmond, Va., has been appointed signal engineer, with the same headquarters.

Purchases and Stores

A. M. Gage, assistant general storekeeper of the Michigan Central, with headquarters at Detroit, Mich., has been appointed general storekeeper, with the same headquarters, to succeed **B. W. Griffith**, who has been appointed general storekeeper of the New York Central, with headquarters at West Albany, N. Y. **H. A. Paar**, division storekeeper of the Michigan Central, with headquarters at Detroit, has been appointed assistant general storekeeper, with the same headquarters, to succeed Mr. Gage.

Obituary

Bernard Edward Morgan, consulting traffic officer of the New York, Chicago & St. Louis, who died at Cleveland, Ohio, on August 23, was born on July 26, 1856, at Adams Basin, N. Y. He entered the service of the Nickel Plate in 1884 as a clerk in the local freight office at Stony Island, Ill., then being advanced through various minor positions in the freight department until 1907 when he was promoted to assistant general freight agent, with headquarters at Chicago. During 1909 Mr. Morgan acted as manager of the Traders Despatch, with headquarters at Chicago, returning to the Nickel Plate as general freight agent with headquarters at Cleveland in 1910. He was promoted to traffic manager, with headquarters at Cleveland, on March 1, 1920. On January 1, 1927, when he reached the age of retirement, he was relieved of active duty according to the pension rules of the company and was appointed consulting traffic officer, a position he held until the time of his death.

B. E. Morgan

"Orange Blossom Special," S. A. L., Near West Palm Beach